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INDIAN CULTURE

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EDITED BY

DEVADATTA RAMKRISHNA BHANDARKAR,
M.A., Ph.D., F.R.A.S.B.
BENI MADHAB BARUA, M.A., D.Litt.
BATAKRISHNA GHOSH, D.Phil., D.Litt.

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OPINIONS ON THE "INDIAN CULTURE"

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Dr. W. Stede.—The new magazine is a very admirable undertaking, embodying the best product of intellect of our Indian colleagues and fellow students. I cannot but pay the highest tribute of admiration to this new publication.

Dr. F. O. Schrader.—...admirable...shows the high standard which is expected of a scientific journal and astonishes one by the richness of its contents.

Mons. Louis Finot. —...full of interesting matter and forebodes a bright future. My best congratulations for this success!

Dr. M. Winternitz. – I congratulate you and your collaborators on the publication of No. 3 of *Indian Culture* which is again full of interesting matter relating to various branches of Indology.

Dr. Louis dela Vallee Poussin.—...contains many good things. I am much interested by the remarks of Prof. Winternitz on the Śramaṇa-Literature. It is the most interesting and useful journal for philosophy and history.

Dr. A. B. Keith.—It is a most interesting number and if the standard of achievement is maintained you will have secured a very valuable addition to the number of scholarly periodicals issued in India.

Dr. F. W. Thomas, *C.I.E.*—May I take this opportunity of expressing my appreciation of your *Indian Culture* and my congratulations upon the completion of a whole volume, with Index and Table of Contents—a very important appendage? The volume contains a large number of articles of a scholarly and serious character and *is a credit to India.* Many of the authors of the articles are old friends of mine, and I would gladly plunge into the fray again, if I could only get free from my present entanglement in Central Asian studies. You have an army of capable contributors.

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Dr. Th. Stcherbatsky—A splendid issue.

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Mr. C. W. Gurner, *I.C.S.*—...a publication of a very high standard.

Director, Archaeological Department, Hyderabad-Deccan.—I congratulate you heartily on the excellence of the articles published in the first number and I hope the standard will be maintained under your able management.

Journal of the Andhra Historical Research Society (Vol. IX, Part I, July, 1934).—This very admirable periodical will be welcomed all over the country by all those who are devoted to the promotion of research into the ancient History of India and her great culture. The excellent character of this new Journal and the high standard of articles published in it, and the enterprise and devotion of the group of the Bengali scholars seem to make Indian Culture rightly and completely fill the great void created by the unfortunate discontinuance of the great epoch making journal, the Indian Antiquary. This new Journal, three numbers of which are before us, shows itself to be first class scientific periodical by the richness of its contents. Like the Indian Antiquary, it is hoped that this Journal also will be an impartial forum to all devoted and inspiring workers under the capable editorship of the distinguished and veteran savant Dr. Devadatta Ramakrishna Bhandarkar, who is assisted by willing and brilliant scholars like Dr. Barua and Dr. Bimala Churn Law. We heartily congratulate the management of the Journal on the high standard of excellence that is attained and hope that by means of unsparing devotion it will be maintained. There is no doubt that its appearance is a valuable addition to the number of scholarly journals published in India to-day. We wish it all success.

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SOME SATIRIC POEMS IN SANSKRIT

By S. K. De

Of satire or satiric verse in the proper sense Sanskrit has very little to show. Its poetic theory of super-individual emotion and its complacent attitude towards life precluded any serious cultivation of this type of literature. Invective, lampoon, parody, mock-heroic or pasquinade—all that the word satire connotes—were outside the sphere of the even tenour and serenity of Sanskrit artistic compositions ; and even in the farce and comic writing the laughter, mostly connected with erotic themes, is hardly keen or bitter. They touch our sense of comedy, but rarely our sense of satire ; for the arrant fools and downright knaves are objects not of indignant detestation but of mild ridicule. Some amount of vivid realism and satirical portraiture will be found in the early Bhāṇas, as well as in the stories of Daṇḍin, but they seldom reach the proportion and propriety of a real satire.

The earliest datable poem of an erotico-comic, if not fully satiric, tendency is the *Kuṭṭanī-mata*,[1] or 'Advice of a Procuress', of Dāmodaragupta, which, in spite of its ugly title and unsavoury subject, is a highly interesting tract, almost creating this particular *genre* in Sanskrit. The author is a highly respectable person, who is mentioned by Kahlaṇa as a poet and minister of Jayāpīḍa of Kashmir (779-813 A.D.); and the fact that his work is quoted extensively in the Anthologies, as well as by Mammaṭa, Hemacandra and others, bears testimony to its high literary reputation. A courtesan of Benares, named Mālatī, unable to attract lovers, seeks the advice of an old, ugly but experienced bawd, Vikarālā, who instructs her to ensnare Cintāmaṇi, son of a high official, and describes to her in some detail the cunning art of winning love and gold. To strengthen her discourse, Vikarālā narrates the story of the courtesan Hāralatā and her lover Sudarśana, in which the erotic and the pathetic sentiments intermingle, as well as the tale of the dancing girl Mañjarī and king Samarabhaṭa of Benares, in which Mañjarī gives an enactment of Harṣa's *Ratnāvalī* and succeeds by her beauty and blandishment to win much wealth

1. Ed. Durgaprasad in Kāvyamālā, Gucchaka iii, NSP, Bombay 1887 ; but with ampler materials, ed. Tanasukhram Manassukhram Tripathi, with a Sanskrit commentary, Bombay 1924. Trs. into German by J. J. Meyer, Leipzig 1903.

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from the prince and leave him impoverished. With graceful touches of wit and humour, delicate problems in the doctrine of love are set forth ; and in spite of the obvious grossness of its dubious content, the work does not lack elegance of treatment ; while the characters, though not wholly agreeable, are drawn with considerable skill and vividness from a direct observation of certain social types. The pictures are doubtless heightened, but they are in all essentials true, and do not present mere caricatures. The chief interest of the work lies in these word-pictures, and not in the stories, which, though well told, are without distinction, nor in the subject-matter, which, though delicately handled, is not above reproach.

Although the *Kuṭṭanī-mata* displays a wide experience of men and manners, it is based undoubtedly upon a close study of the art of Erotics, the Vaiśika Upacāra or Vaiśikī Kalā, elaborated by Vātsyāyana and Bharata for the benefit of the man-about-town and the courtesan ; but, on this ground, to reject it as mere pornography is to mistake the real trend of the lively little sketch. There is indeed a great deal of frankness, and even gusto, in describing, in no squeamish language, the art and mystery of satisfying the physical woman, and the heroines of the stories are made the centres of coarse intrigues. Modern taste would perhaps regard all this as foul and fulsome ; but there is no proof of moral depravity. On the contrary, the moral depravity, perhaps of his own time (as we learn from Kahlaṇa), is openly and amusingly depicted by the author, not with approval, but with the object of making it look ridiculous. As in most comic writings in Sanskrit, the erotic tendency prevails, and there is not much direct satire. But, even if his scope is narrow, Dāmodaragupta is a real humourist, who does not seek to paint black as white but leaves the question of black and white for the most part alone. At the conclusion of his poem, he tells us that any one who reads it will not fall victim to the deceit of rogues, panderers and procuresses ; but his work is not a mere guide-book for the blind, the weak and the misguided. It is a work of art in which there is no didactic moralising, but which is characterised by direct and animated, but not merciless, painting of droll life, essentially of the higher grades of society. The poet sees two kinds of men in all walks of life—rogues and fools ; but he neither hates the one nor despises the other. The result is comedy rather than satire, not virtuous indignation but entertaining exposure of human frailty. Dāmodaragupta is a perfect artist in words, as well as a poet ; and the facetious style, couched in slow-moving and serious Āryā stanzas, is elegantly polished and pointed, yet simple and direct in polite banter, persiflage and power of gentle ridicule. There is hardly anywhere any roughness or bitterness ; and

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the witty, smooth and humorous treatment makes the work unique in Sanskrit. If the atmosphere is squalid, it is not depressing, but amusing. Dāmodaragupta is daring enough to skate on thin ice, but he has balance and lightness to carry him through; and if his onset is not biting, it is not entirely toothless. That the extraordinary coarseness of his subject never hindered the popularity of his work with men of taste and culture is a tribute to its innate literary merit.

The type of satirico-comic poetry, inaugurated by Dāmodaragupta, does not find any gifted exponent, but languishes in the hands of a limited number of industrious writers, who are indeed experts in erotics and shrewd observers of life, but who lack the balance and lightness of touch in painting drolleries, as well as the power of polished wit and gentle ridicule to redeem the natural tendency to bitter sarcasm or coarse realism. The only writer who evinces an interesting bent in this direction is another Kashmirian, Kṣemendra, whose works best exemplify the merits and defects of later attempts. This hard-working polymath,[2] surnamed Vyāsadāsa, was the son of Prakāśendra and grandson of Sindhu, and wrote in the reign of Ananta and his son and successor Kalasa of Kashmir, Kṣemendra's literary activity thus falling in the middle and second half of the 11th century. He composed not only poems, plays, narrative, didactic and satiric sketches, a work on Nīti *(Nīti-kalpataru)*, and treatises on rhetoric, erotics and prosody, but also made abstracts of older poems, of the two Epics, Guṇāḍhya's *Bṛhatkathā*, of the Buddhist Avadānas, of Bāṇa's *Kādambarī* and of Vātsyāyana's *Kāma-sūtra*. Hardly any other Sanskrit writer is so thorough a devotee of what may be called miscellaneous literature. He is versatile, accomplished and methodical, but he cannot be altogether dimissed as a mere adapter or miscellaneous compiler. Perhaps his enormous literary travail was not such drudgery as one would be inclined to think, for it certainly helped him to acquire an admirable literary skill and an amount of multifarious learning which add a flavour to his best writings. But his originality is best seen, not in his laborious lucubrations, which are no more than literary exercises, but in the lighter things on which perhaps he did not spend so much labour and midnight oil.

In his *Samaya-mātṛkā*[3] or Original Book of Convention for the

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2. On Kṣemendra and his works, see S. K. De, *Sanskrit Poetics*, i, pp. 139-43.—On Kṣemendra's handling of his materials in making abstracts, see M. B. Emeneau, Kṣemendra as Kavi in *JAOS*, liii, 1933, p. 124f.

3. Ed. Durgaprasad and K. P. Parab, NSP, 2nd ed., Bombay 1925.

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Courtesan, Kṣemendra is doubtless inspired by Dāmodaragupta ; and he selects a similar theme of the snares and trickeries of the harlot. It gives in eight chapters, composed mostly in Śloka but diversified by lyrical measures, the story of a young courtesan Kalāvatī, who is introduced by a roguish barber to an "owl-faced, crow-necked and cat-eyed" (iv. 7) old bawd, named Kaṅkālī, for detailed but witty instruction in her difficult profession, and who succeeds with her advice and assistance to ensnare a precocious young boy and rob his rich and foolish parents. The merit of the work lies not in its unsavoury story, but in its heightened, yet graphic, picture of droll life, painted with considerable sharpness of phrasing and characterisation, and with an undertone of mocking satire directed against many forms of prevalent deformity. The most curious part of the work is the amusing account, given with touches of local colour, of the adventures of Kaṅkālī and her wanderings in younger days through the length and breadth of Kashmir, as a whore, pretended wife and widow to many men, thief, nun, procuress, shop-girl, seller of cakes, barmaid, beggar-woman, flower-girl, woman-magician and holy saint ; while her spicy anecdotes, her erotic classification of different types of men after different birds and beasts, and her shady but ingenious ways of cheating fools and knaves are not without interest. Kṣemendra does not show any squeamishness regarding delicate, questionable and even repulsive topics, nor any tendency to romanticise them. He wields a rich, racy and pointed style, and has considerable skill in turning out keenly edged verses, suitable for depicting certain types of ludicrous men and scenes. But it cannot be said that his outspoken frankness does not often lapse into a gloating over bald and unnecessary vulgarities. It is difficult indeed for his subject to steer clear of the danger in all cases, but with his knowledge and zest for erotics, Kṣemendra appears to be a willing victim. He is more a satirist than a humourist, and is in a sense privileged to present things in a repulsively naked form ; but, pungent and realistic that his descriptions often are, there is nothing to redeem the general atmosphere of prosy and depressing sordidness. Nevertheless, his work, as *chronique scandaleuse,* is not mere pornography, nor an immoral work with a moral tag ; it is, in spite of its obvious coarseness, an interesting specimen of an approach to satirical writing which is so rarely cultivated in Sanskrit.

Kṣemendra's other works are not so richly descriptive ; they are compositions of a somewhat more didactic kind. They are not narratives, but are either shrewd homilies on human wickedness, with occasional flashes of trenchant wit and amusing word-pictures, or entertaining sketches of human follies and oddities, enlivened by cutting sarcasm and facetious anecdotes. Of the homiletic kind are his *Sevya-*

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sevakopadeśa,[4] *Cārucaryā*,[5] and *Caturvarga-saṃgraha*.[6] The first is a short tract of sixty-one verses, containing astute reflections on the relation of master and servant ; the second is a century of moral aphorisms in Śloka metre on virtuous conduct, illustrated by pithy allusions to myths and legends ingeniously ransacked by the author's miscellaneous learning ;while the third is a poetical exposition, in four chapters, of the four general objects of human activity, namely, virtue, wealth, love and salvation. In all these deliberately didactic works it is the satirist who is turned a homilist ; and his observations are not destitute of a witty and often epigrammatic flavour, to which his simple and elegantly direct style undoubtedly contributes.

More interesting are his satirical sketches of different types of human frailty. His *Darpa-dalana*[7] is a diatribe against human pride, which is described as springing from seven principal sources, namely, birth, wealth, learning, beauty, valour, charity and asceticism ; they are treated separately in as many chapters, with illustration of each type of braggadocio by a tale invented for the purpose. Here the moralist is dominant, but the satirist is irrepressible and peeps out very often ; as, for instance, in the description of quacks in learning and pretenders to sanctity. In his *Kalā-vilāsa*[8] Kṣemendra reverts to his mode of satire, with less coarseness and greater sense of comedy, and adopts the moric Āryā metre of Dāmodaragupta's *Kuṭṭanī-mata*. It is a poem in ten cantos, in which Mūladeva, the legendary master of trickery, instructs his young disciple Candragupta, son of a merchant, in the arts of roguery practised by cheats, quack doctors, harlots, traders, goldsmiths, singers, actors, beggars, ascetics and so forth, and illustrates his exposition by amusing tales. The first canto gives a general account of the various forms of cheating and their exponents ; the second describes greed ; the third discusses the erotic impulse and wiles of women ; the fourth is devoted entirely to the harlot ; the fifth depicts the Kāyasthas, skilled in crooked writing, who, as high-placed

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4. Ed. Kāvyamālā, Gucchaka ii, p. 79f. The verses are in varied metres.

5. Ed. Kāvyamālā, Gucchaka ii, p. 128f.

6. Ed. Kāvyamālā, Gucchaka v, p. 75f. In 107 verses in diverse metres. See Lévi in *JA*, 1885, t. iv, s. 8, p. 404f.

7. Ed. Kāvyamālā, Gucchaka vi, p. 66f. In varied metres. Trs. into German by R. Schmidt in *ZDMG*, lxix, 1915, p. 1f. Extracts ed. and trs. B. A. Hirszbant (Ueber Kṣemendras Darpadalana), St. Petersburg 1892.

8. Ed. Kāvyamālā, Gucchaka i, p. 34f. Trans. into German (v-x) by R. Schmidt in *WZKM*, xxviii, 1914, p. 406f.

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executive officials, without conscience but with great power of mischief, form the target of Kṣemendra's special invective ; the sixth dilates upon the follies of pride ; the seventh describes with much wit the wandering singer, bard, dancer and actor, who steal people's money by their device of making harmonious noise and meaningless antics ; the eighth denounces the special tricks of the goldsmith who steals your gold before your eyes ; the ninth deals with various minor forms of roguery practised by the astrologer, the false doctor, the seller of patent medicine, merchant and other *chevaliers d'industrie* of the same feather ; while the tenth and last canto winds up with a constructive lecture on what the arts should be. The work is thus a remarkable and comprehensive discourse, with a legendary framework, on the various activities of notorious tricksters known to Kṣemendra ; and his easy and elegant style makes the descriptions amusing and the satire effective.

The two works, *Deśopadeśa* and *Narma-mālā*,[9] which are in some respects complementary to each other, are conceived in the same spirit and style, and directed, more narrowly but with greater concentration, against oppression, hypocrisy and corruption which prevailed in Kashmir in his days. The first work is put in the form of advice (Upadeśa) or rather ironical homage, the second in that of ridicule (Narma or Parihāsa) ; but the satirical attitude is not different. The *Deśopadeśa* deals, in eight sections, with the cheat (Khala) who builds castles in the air to delude innocent people ; the avaricious miser (Kadarya), miserable, dirty and desolate, who never enjoys what he hoards ; the prostitute, described as a restless but mechanical wooden puppet, with her cheap tricks and one hundred and one amulets worn on her body for luck ; the snake-like old bawd (Kuṭṭanī), who can make the impossible possible and *vice versa*, but who cannot help getting bruised in constant brawls ; the ostentations voluptuary (Viṭa), monkey-like with his foppish dress, curly hair, dental speech and love for loose women ; the student from foreign lands, especially from Gauḍa, who avoid touch of people lest their fragile body should break, but who under the bracing climate of Kashmir acquire overbearing manners, refuse to pay shopkeepers and are ready to draw the knife on the slightest provocation ; the old man marrying a young wife to the amusement and joy of other people, and begetting a child, like a withered and leafless tree bearing unexpected fruit ; the degraded Śaiva teacher, ignorant and lecherous, and the people who come to him, namely, the inevitable Kāyastha and his fickle wife favoured by

9. Ed. Madhusudan Kaul. Kashmir Series of Texts and Studies, Poona 1923.

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the Guru, the poetaster struggling with his shabby verses, the crafty merchant, the bragging alchemist, the false ascetic, the boastful grammarian, and the ignorant, ink-besmeared scribe. In the *Narma-mālā* we have a similar series of pen-pictures, but its three interesting chapters are meant to be a sharp satire on the misrule and oppression of the Kāyastha administration before the time of king Ananta. The Kāyastha, whose pen was his sword, monopolised all the key-positions in the state, as the Gṛhakṛtyādhipati, chief executive officer of internal administration, the Paripālaka, governor of a province, the Lekhopādhyāya, clerk-in-chief, the Gañja-divira, chief accountant, and the Niyogin, executive officer in the villages. In the first chapter are described the public activities of these and other officers, their parasites and myrmidons, and their enormities and atrocious misdeeds ; the rest of the work outlines, with vivid skill, the degraded private life of a typical Kāyastha and his frivolous wife, in the course of which we have again a quack doctor, a foolish astrologer, a Buddhist nun acting as a go-between, a surgeon-barber, and the Śaiva Guru who institutes a sacrifice to restore the mysteriously failing health of the Kāyastha's wife. Apart from the local interest and value of these works, they are indeed noteworthy satirical sketches, exaggerated *cum grano salis* but substantially faithful, having less frequent lapses into squalor or coarseness, and composed in the best literary manner of Kṣemendra. There is nothing of melancholy wisdom in Kṣemendra. Knowing full well the castigating use of satire, he deals out his blows too liberally, but with precision, with bitter and often foul-mouthed presumption, but with the unerring insight of a shrewd observer. His adroit epithets, *bons mots,* and picturesquely abusive phrases show his fine literary skill in metre, language and significance, eminently suitable to his subject and his method.

Kṣemendra's satirical writings assume importance when one considers their literary worth in the light of the vein of originality which practically failed and ceased after him. We have some feeble attempts, like *Mugdhopadeśa*[10] of the Kashmirian Jahlaṇa (1st half of the 12th century), which in sixty-six verses in the ill chosen Śārdūlavikrīḍita metre contains high-flown reflections on the lure and deception of the traditional, rather than the real, courtesan *(esto perpetua !),* in an erotically didactic rather than satiric style. These moralising poets are too serious to depict sins and follies of men with

10. Ed. Kāvyamālā, Gucchaka viii, p. 125f. Jahlaṇa was also the author of the poem *Somapāla-vilāsa.* He should be distinguished from the anthologist Jahlaṇa.

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the sparkle of wit and humour. Anxious to maintain respectability, they are afraid of descending to the repellent reality which their subject demands, and only touch the fringe of it, from a safe distance, with the stick of romantic verse. Of different interest perhaps is the *Kali-viḍambana*[21] of the South Indian Nīlakaṇṭha Dīkṣita ; it is more polished, but witty, in describing in a century of well rounded Śloka-verses the hopeless state of human affairs in the degraded Kali age. None of these and similar works of later times, however, give us such amusing sketches or piquant pictures of everyday society as we have in the works of Dāmodaragupta and Kṣemendra. They may not indicate higher sanctitude but perhaps greater sanctimoniousness. The only later works which weakly attempt to carry on the tradition of satire are the Prahasanas or farces ; but the Prahasanas never flourished with convincing vigour, nor became an achievement of which Sanskrit literature can be legitimately proud. They fall into the error of bald realism, acrid satire or unredeemed vulgarity. The difficult type of satiric poetry had great possibilites, but it never developed properly in Sanskrit.

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11. Ed. Kāvyamālā, Gucchaka v, p. 115f.

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THE TAPESTRY OF ANCIENT INDIAN HISTORY*

By HEMCHANDRA RAYCHAUDHURI

My first words must be expressive of a most cordial welcome to the distinguished band of scholars, investigators and lovers of learning whom I am privileged to see around me to-day. I am using no conventional words when I tell you how much I value this opportunity of serving my co-workers and fellow students. It is the kindness that I have often received from my *confrères* that emboldens me to undertake a responsibility which, but for their good will and co-operation, it would be beyond my power to discharge.

We meet to-day in the Deccan—*Agastyamunijyotsnāpavitre Dakṣiṇāpathe*—in the historic city besprinkled by the waters of the Musi, endowed with the mural crown by the Qutbshāhī sultans of Golconda, and rendered illustrious by the far-famed house of Āsaf Jāh. The fourth largest city in Bhāratavarṣa, Bhāgnagar or Hyderābād, as it has been styled since the middle ages, is the metropolis of a realm which embraces within its boundaries the caves of Ajaṇṭā and Ellora, the shrines at Hanamkoṇḍa and Tūljāpur, the mosques of Bodhan and Gulbarga, the capital cities of Paiṭhan and Warangal, the ramparts and battlements of Māhūr and Rāichūr, of Mudgal and Naldrug, of Daulatābād and Bīdar, of Parenda and Golconda. The recorded history of the people, whose hospitality we enjoy to-day, dates back to the age of the Ṛgvedic Brāhmaṇas. Beautiful monasteries, charming frescoes, solemn temples, lofty minārs, gorgeous palaces, splendid *madrasas* and majestic mosques added lustre to the names of the successive dynasties that presided over the destinies of the land in by gone times—the Sātavāhanas, the Vākāṭakas, the Calukyas, the Rāṣṭrakūṭas, the Kākatīyas, the Bahmanids—to name only a few of them. The monuments that they have bequeathed to posterity are no insubstantial pageant that fades leaving not a rack behind. The faith that urged the master-builders to constructive endeavour, the fire that burnt within their soul, are of the people of this land by heritage and may yet add an illumined page to its chequered annals.

But here I recall to my mind the admonition of a high authority, presiding over an all-India gathering of scholars. "The chief duty of

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a president is to keep silence and to listen." This maxim claims a hoary antiquity as it seems to have been followed in the main by the *kulapatis* in the gemotes of the heroic age that met to hearken to "stirring tales of war and moil," to

itivṛttaṁ narendrāṇām
ṛṣiṇāñca mahātmanām.

The procedure preferred by the *sabhāpatis* of later generations named in the *Kāvya Mīmāṁsā* may not have been much different. What a welcome relief would it have been for me to tread in their foot-steps. But gone are those halcyon days. We have to face the iron laws in an iron time. It has been the custom in these congresses and conferences for the president either to address to the assembled scholars a discourse upon some subject of importance or review in outline the activities of those who in the recent past continued the work of tracing the threads which have gone to the making of the multicoloured tapestry of Indian history.

The presentation of the briefest outline cannot fail to take note of the irretrievable loss we have sustained by the passing away of not a few of the great figures that towered like tritons in our midst. Tagore, poet, artist, essayist, philosopher, prophet of a new vision, was at the same time a keen student of Indian History and a revealer in his own inimitable manner of the inner soul of this ancient people. Dr. Sir Ganganath Jha, scholar, educationist and administrator, has left works that are indispensable to the student of social and legal history. Sir George Grierson, linguist and philologist, made brilliant contributions to the study of the history of languages and the evolution of religion in India. Shams ul Ulema Muhammad Hidayet Hussain, teacher and investigator, whose benign smile is to me a memory to be treasured, dived deep into Arabic and Persian lore and threw a flood of light on many problems of our country's past.

The transformation of the All India Modern History Congress into the Indian History Congress whose horizon was no longer bounded by the limits of the modern age, but embraced within its orb all epochs of Indian History, Ancient, Mediaeval as well as Modern, closed the eventful century that had been ushered in by the publication of Ṛgvedic Texts by Friedrich Rosen and the unravelling of the mysteries of the Brāhmī alphabet by James Prinsep. The years that have since passed by have, on the whole, seen substantial progress in the onward march of historical research in several directions. The work of resuscitating the past and of chronicling the kaleidoscopic changes that marked the annals of our country have gone apace. To the aid of the historian have come the spade of the archaeological

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explorer, the discerning eye of the trained numismatist and the patient scholarship of the student of Anthropology, Mythology, Comparative Religion and Philology.

Fruitful works of excavation and exploration have been undertaken not only by the central Department of Archaeology, but by several States including Hyderābād, and non-official bodies in the provinces of British India. The spade is busy in unravelling the secrets of Rāmnagar. Valuable antiquities have been discovered at Rājghāṭ, Kurkihār, Baragaṅgā, Jājpur and other places. The University of Calcutta has undertaken the exploration of the historic site of Bāṇgarh. The Bāṇgarh excavation and the expansion of the Asutosh Museum which was recently started by the University under the guidance of Dr. Syamaprasad Mookerjee, have been of immense help in giving students of history much needed lessons in practical Archaeology. The recent collection of art objects in the Museum by Messrs D. P. Ghosh, K. G. Goswami and their co-workers includes notable specimens of sculpture and painting which point to interesting phases in the art tradition of eastern India. The discovery of new images, stone and bronze inscriptions, copper plates and coins through individual enterprise and the effort of universities and other learned bodies, has thrown welcome light on the history of several dynasties including the Sātavāhanas, the Kuṣāṇs, the Vākāṭakas, the Guptas, the Maukharis, the Pālas, the Candras and the early kings of Kāmarūpa who claimed Bhagadatta's lineage.

The keen interest felt in historical studies is well attested by the work of learned societies whose number has multiplied considerably in recent times. Their activities are sometimes persistent, at times remittent, and on occasions rather intermittent. Mention may be made here of the work that is being done not only by the time-honoured Royal Asiatic Society which, like the *nyagrodha*, threw off in the past healthy offshoots in many directions, but also by the Bhārata Itihāsa Saṁśodhaka Maṇḍala, the Bhandarkar Oriental Research Institute, the Research societies of Bihār and Orissa, Andhra and Karṇāṭaka, the historical societies of the United Provinces, the Punjab, Sind and Mahākosala, the Kāmarūpa Anusandhāna Samiti, the Vaṅgīya Sāhitya Pariṣad, the Varendra Research Society, the Greater India Society, the Mahābodhi Society, the Indian Society of Oriental Art, the Indian Research Institute, the Rāmakṛṣṇa Mission Institute of Culture, the Veṅkateśvara Oriental Institute, the Numismatic Society, the Bhāratīya Itihāsa Pariṣad and similar bodies.

The literary output of the recent past has not been inconsiderable. Each epoch or aspect of our period claims the attention of a number of scholars and enquirers who have made it the object of

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their special study. It is a matter for sincere congratulation that some of the contributions come from the pen of ladies. The promising career of one of them, Dr. Minakshi, has been cut short by the cruel hand of death. But others are still amongst us and doing work that merits attention. Two of them, Miss Padma Misra and Miss K. Virji have submitted papers for this section. Another distinguished lady, Miss Karuna Kana Gupta, recently explored the history of the Nāgas while Miss D. N. Bhagvat, Mrs. Jyotirmayee Bose and Dr. P. C. Dharma dealt with Buddhist Monachism, Śaivism and Rāmāyaṇic Studies respectively.

The period coming within the purview of our section extends from the earliest times to 711 A.D. It is not necessary here to discuss the principle followed in suggesting the lower limit. Delimitation of periods is to the historian what parallels of latitude or meridians of longitude are to the geographer—imaginary lines invented for the sake of convenience. One historical period often imperceptibly fades into another. In a country of the size and dimensions of India landmarks that hold good for the entire sub-continent are not easy to find. Nevertheless the eighth century A.D. did introduce new warps and woofs in its political and cultural texture, specially in the north-west. The preceding ages had seen the birth, efflorescence and transformation of many types of civilisation. History can hardly take any note of the earliest of these, when man first set the stage in India. The story in the present state of our knowledge must open with the dawn of Chalcolithic culture in the valley of the Indus. Further excavations at the pre-historic sites in this region brought to fuller view the links that bound the ancient civilisation of our country with the contemporaneous culture of Anau and Elam, Sumer and Anatolia, Egypt and Crete. The researches and investigations of Hrozny, Herzfeld, Arthur Keith, Mackay, Frankfort, Corbiau, Hackin, Carleton and a host of other scholars have emphasised the value, for the elucidation of our own pre-historic antiquities, of the study of the ancient civilisations of Iran, Iraq and the eastern Mediterranean lands. We have acquired a new interest in the golden helmet of Meskalamdug, the Stela of the Vultures of Eannatum, the relics of pre-dynastic Egypt, the seals of the middle kingdom, the vaulting feats pictured in Cretan art, the legends of Gilgamesh and Enkidu, the eagle and the club of Ningirsu, the hymns of Nergal, the representations of the Hittite Teshub and those of the mother goddess at Ephesus and Susa, references to Dakash, Shuriash, Maruttash and Shimalia in Kassite documents and lastly to "the ships of Meluhha, the ships of Magan and the ships of Dilmun" which anchored at the quay in the front of Agade in the days of Sargon.

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Indus culture claims the close attention of the Archaeological Department. It has attracted investigators like the Rev. Father Heras and many other workers. It may be of interest to our own antiquarians who attempt to determine early chronology, or reconstruct ancient history, on the basis of very late bardic or priestly tradition, and persist in clinging to dynastic designations not supported by contemporary evidence, to know how Assyriologists and Egyptologists treat the king-lists and chronicles of Nur-Ninsubur, Berossos and Manetho, and how attempts at a solution of the riddle of Egyptian writing fared before the discovery of the Rosetta Stone. Diligence and enthusiasm deserve praise and encouragement, but are not likely to produce the best results unless chastened by critical caution and discerning judgement.

Valuable work in the domain of Iranian studies useful for the student of Indian antiquities has been done by the excavators of the Oriental Institute of the University of Chicago and by the colleagues of Arthur Upham Pope, the learned editor of *A Survey of Persian Art*. It gives me pleasure to refer in this connection to the recent work of Dr. Sukumar Sen which deals with old Persian inscriptions. Important Achæmenian records also find a place in a corpus of inscriptions that is being prepared by Dr. Sircar. An interesting discovery in recent years is that of several stone tablets east of the great palace terrace at Persepolis where Xerxes records his victories in lands in which the *daivas* were worshipped.

Vedic studies have found in recent months workers in Mr. V. M. Apte, Mr. B. S. Upadhya, Mr. Pusalkar and others. The Great Epic is being dealt with by Dr. Sukthankar and his colleagues and has recently claimed the attention of Professor H. C. Seth who is already well known for his somewhat daring dissertations on the Maurya period. The light thrown by epigraphy, the early Pali canon and Trans-Gangetic sources on the date and development of the heroic as well the didactic epic needs further exploration.

The early records of the Jains and the Buddhists have been made to yield interesting information by Drs. B. C. Law, Malalasekera, Barua, Prof. K. P. Mitra, Mr. K. P. Jain, and Mr. Ratilal Mehta, and have been utilised by Professor N. N. Ghosh for his monograph on Kauśāmbī.

There are several problems connected with the Nanda and Maurya dynasties that await further investigation. The date of Mahāpadma, the commencement of Candragupta's reign, the age and authenticity of the *Kauṭilīya Arthaśāstra*, the identity of Satiyaputra and of Alikasudara, Aśoka's relations with Suvarṇabhūmi, the social organisa-

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tion of his days, the detailed story of the later Mauryas—to name only a few of them—continue to tantalise the enquirer.

Not much has been done in recent times by Indian scholars, with very few exceptions, by way of exploring the Greek evidence for further elucidation of the history of the pre-Christian centuries for which reliable literary evidence is scanty. Some of the volumes published by the Loeb Classical Library deserve incisive study. In a work of Xenophon, who died about the middle of the fourth century B.C., we have notice of an Indian king who is described as a very wealthy man—a reference that may be compared to the Indian account of the Nandas, the reputed possessors of enormous wealth. The personality of Bindusāra and his solicitude for Greek sophists as well as *Ājīva parivrājakas* deserve attention to appreciate the environment amidst which his more famous successor grew up.

The period of the Bactrian Greeks that followed the disintegration of the Maurya empire is the theme of a very learned and elaborate treatise by W. W. Tarn whose work has invited interesting comments from A. B. Keith, Johnston and Saurindra Nath Ray. The history and chronology of the Scytho-Parthian and Sātavāhana rulers remain much vexed questions. The ghost of Kaṇiṣka has not been laid, or the riddle of the eras of 58 B.C. and 78 A.D. solved, to the satisfaction of all. But the note of Dr. Lüders on the era of the *Mahārāja* and *Mahārājarājātirāja* and the astronomical calculations of Mr. Probodh Chandra Sengupta deserve attention. The problems of the eras used by the Traikūṭakas, the early Gaṅgas of Kaliṅga and a Kadamba prince at Halsi, also present difficulties, though not all of the same character. Much new information regarding the Kuṣāṇs and the Sātavāhanas has been vouchsafed to us in recent times. The researches of Mr. M. N. Nagar and Professor V. V. Mirashi may be mentioned in this connection.

Several obscure spaces in the spectrum of Gupta history and the annals of the Vākāṭakas and the Maukharis remain to be illumined. The researches of Dr. Altekar, Professor Mirashi, Dr. D. C. Ganguly, Dr. Sircar and Messrs. Jagannath, Y. K. Deshpande, Akhil Bandhu Biswas and A. Ghosh merit close study. In regard to the problem of the earliest Guptas of the fourth century A.D. tradition embodied in dramas and works on poetics of a late date, or even in epigraphs composed some five centuries after the incidents, can hardly be given equal weight with contemporary inscriptions and coins. The problem of Bālāditya is scarcely to be solved by ignoring the Sārnāth record of Prakaṭāditya as is done in a recent publication. The relation of the line of Mahārāja Śrī Gupta with Vainyagupta and Kṛṣṇagupta also demands study. The role of the early Guptas and the dynasties with

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which they are known to have come into contact, in popularising Sanskrit and the cult of "the victorious Bhagavat" in the south, deserves as much study as their endeavour to revive sacrificial rites in the north. Sufficient attention has not, I believe, also been paid to the notice in the Allahabad *praśasti* of the relation of the imperial government in the Ganges valley with the "dwellers in islands" in tracing the history of Indian colonial and cultural expansion in the Gupta age. The reference in a Malayan epigraph to a *Mahānāvika* from Raktamṛttikā may be recalled in this connection.

As to the Vākāṭakas, the need of re-examining some of their known records, and of bringing out the full significance of the term *rājya* used in reference to territorial divisions of their realm, in the light of the Vatsagulma grant, is apparent.

The identity of the Maukhari capital remains, I believe, still a mystery. Evidence adduced on the point is neither unanimous nor conclusive. Among other important problems may be mentioned the origin and order of succession of the early Pallavas, the earliest chronology of the Gaṅgas of Talakāḍ and the relations of the Gurjaras of the Mahārāja *Karṇānvaya* with those of the *Pratihārānvaya*.

The history of Harṣa, which was elucidated by Drs. Radha Kumud Mookerjee, R. C. Majumdar, Niharranjan Ray, and R. S. Tripathi, has in recent times attracted a good deal of attention and an interesting dissertation has been contributed by Mr. Nalini Nath Das Gupta.

The period from the death of Harṣa to the advent of the vanguard of the army of Hajjāj early in the eighth century A.D. offers another promising field for research.

A notable feature of historical investigation in recent years is the attention paid to provincial history. The Kāmarūpa Anusandhāna Samiti has taken in hand the reconstruction of the past history of Assam. Welcome light is thrown on the early annals of this eastern province by the Baragaṅgā epigraph of Bhūtivarman brought to notice by Dr. Bhattasali of the Dacca Museum. The University of the last mentioned city is making good progress with a comprehensive history of Bengal with the co-operation of several teachers of the Calcutta University besides other scholars. Shorter dissertations on the province proceed from the pens of Drs. B. C. Sen, Nihar Ray, Mr. Adris Banerji and Mr. P. Paul. The study of the history of eastern India has been facilitated by the new edition of the *Rāmacaritam* with commentaries and an English translation by Drs. Majumdar, Basak and Pandit N. Banerji.

Gujarat claims the attention of Professor H. D. Sankalia and Messrs. D. B. Diskalkar and P. C. Divanji, and Rajput history that of Pandit G. H. Ojha, Dr. H. C. Ray, Pandit Bisheshwar Reu, Mr.

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Subimal Datta and others. The Central Provinces form the subject of a detailed study by Professor Mirashi. Orissa has assiduous workers in Messrs. K. C. Panigrahi, P. Acharya, B. Misra, and Kumar B. S. Deo. Parts of the Kanarese Country and South Konkan continue to claim the attention of Dr. Saletore and Mr. Moraes, and Travancore that of Messrs. Poduval, C. Achyuta Menon and their co-workers. The great Andhra country has investigators like Messrs. Krishna Rao, Rama Rao, Subba Rao and Dr. Venkataramanayya. The history of Tamil land is being explored by Dr. Aiyangar, Rao Sahib C. S. Srinivasachari, Professor Nilakantha Sastri, Mr. Dikshitar, Mr. Aravamuthan and their colleagues and co-workers.

In the dim mists of antiquity some scholars discern a movement to India of peoples from Malayan and Polynesian lands. The waves, if they really came from those regions, rolled back, possibly breaking into ripples, in historic times, and some of the most thrilling chapters of our early history are filled by the story of Hindu colonial and cultural expansion in the countries and isles of gold (*Suvarṇabhūmi* and *Suvarṇadvīpa*) beyond the Ganges. These lands are gradually yielding relics which though not so old as those of Elam and Sumer, have already proved to be of absorbing interest. The history of the little bits of ancient Indian soil set in the silver sea of the Far East, and the neighbouring lands whose shores it laves, is being elucidated with great industry and devotion by Dr. Majumdar, Professor Nilakantha Sastri, Professor Bijan Raj Chatterji, Drs. U. N. Ghoshal and Niharranjan Ray, Mr. Himangsu Sarkar and others.

Geography, which competent critics regard as an indispensable foundation for historical studies, is receiving attention from Drs. Law, S. C. Sarkar and Mr. Sudhakar Chatterji. A geography of India which takes full note of epigraphic evidence is a desideratum. The study of Numismatics, a valuable source of history, and the only source for the history of certain periods, is being pursued amongst others by Mr. J. N. Banerji, Professor Mirashi, Dr. Altekar, Dr. S. K. Chakravarti, Messrs. Rabischandra Kar and D. D. Kosambi.

There are other branches of history, besides the story of political vicissitudes, which, though hardly capable of vying with the latter in satisfying the crave of the human mind for whatever is exciting and romantic, have nevertheless greater attraction for those who are interested in the evolution of ideas and institutions in the fields of politics, education, sociology, economics, religion and art. The study of Indian polity had absorbed the energy of some of our most distinguished scholars since the publication of the *Kauṭilīya Arthaśāstra*. It will doubtless receive a fresh impetus from the publication of the recent works of Professor K. V. Rangaswami Aiyangar,

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Drs. N. C. Banerji and N. C. Ganguly. Education in ancient India is claiming the attention of Dr. R. K. Mookerjee. Social history is being explored by Drs. R. C. Hazra, J. B. Chowdhury and Mr. Sudhir-ranjan Das. Economic history has a devoted worker in Mr. Atindra Nath Bose, while religious history is being dealt with by Drs. Barua, Bagchi, N. Dutt, and Mr. Provat Mookerjee. Iconography, a subject closely connected with religious studies, is claiming increased attention in recent years and has attracted the patient industry and penetrating insight of Mr. J. N. Banerji, whose important work on Hindu Iconography will soon be in the hands of scholars. Among other workers in the field mention may be made of Mr. Sarasi Kumar Saraswati and Mr. B. C. Bhattacharyya. Painting, architecture and some of the minor arts have attracted the attention of Mr. G. Yazdani, Mr. O. C. Gangoly and several scholars of the younger generation including Messrs. D. P. Ghosh, Saraswati, C. C. Dasgupta and K. K. Ganguli.

The success attained by individual effort is, in not a few cases, encouraging. But this does not obviate the need for discussion and co-operation in conferences like the present one. "Historical thinking", says Acton, "is better than historical learning." It is difficult to conceive of a better method of stimulating thought than personal contact and exchange of ideas amongst scholars, students and enquirers interested in a subject.

But here a question may be asked as to whether historical discussions have any value for the community in the midst of which we live, move and have our being, whether they add anything to material power and the well-being of man. It must be confessed that it is not the function of history to supply food and clothing to the poor or medicine to the sick. A student of history does not practise the commonly understood art of healing, far less that of killing. The grand purpose of history is, as pointed out by Trevelyan, to emancipate man from the doom pronounced upon him at his birth, of life-long imprisonment in a single century and in a single set of material and intellectual circumstances. In the words of Acton and Southey, it enables us to rise above the pressure of time, race and environment and live in the company of the 'mighty minds of old' that no single country or age could produce. The past holds in its bosom a great storehouse of knowledge and experience, a mass of material for the delectation of the right-minded, indispensable to the man who, with Burke, wants to avoid a dull uniformity in mischief and the unpitied calamity of being repeatedly caught in the same snare. Historical studies are a powerful solvent of superstition and a useful corrective of misconceptions and exaggerations. To ignore these studies is to live in a twilight of fiction, on a sand bank of apathy, with the roaring cur-

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rents of time eddying around, oblivious of the gems deposited by the stream of history, heedless of the fact that the science of politics, of sociology, the historical romance and the drama are like grains of gold on the beach of the river of history.

Some regard history mainly as a form of literature to charm their leisure, or a prop to buttress time-worn ideas, or a thread on which to string some pre-conceived moral. To be useful history must never sever its relation to hard fact. The living truth about man, both the great and the common folk, must not be discoloured by individual fancy or disfigured by the heat of partisanship. The historian must not project his own broad shadow upon his pages too often so as to blur the picture he has taken so much pain to paint. "That man of merit alone deserves praise," says Kalhaṇa, the eminent historian of ancient India, "whose language, like that of a judge, in recounting the events of the past, has discarded bias as well as prejudice" :

ślāghyaḥ sa eva guṇavān rāgadveṣabahiṣkṛtā
bhūtārthakathane yasya stheyasyeva sarasvatī.

History must be scientific in its method of collecting and collating evidence. But it need not be dull. A harmonious union of scientific precision, literary elegance and artistic skill should be the aim. It has, however, to be admitted that ideal perfection is hard to attain. But the attempt is worth making. If we cannot vie with the man of science in enlarging the command of our species over nature, or with the literary artist in giving solace to the wearied mind or the worried soul, we can at least free it to a certain extent from the trammels of its surroundings and try to make man "the heir of all the ages". He may if he chooses

From their lessons seek and find
Instruction with an humble mind.

He may learn how a great people first becomes conscious of its individuality and develops a soul. How history ceases to be a tale of isolated adventures, or a narration of the deeds of individuals or small groups engaged in a struggle for bare existence—how it becomes a progressive manifestation of the mind of a nation, the process by which its soul unfolds itself in political and administrative achievement, moral and social regeneration, religious and literary endeavour, scientific and artistic efflorescence. Each great people of antiquity had its own characteristic marks of development. We may recall in this connection the moral fervour of the Hebrew psalmists, the sense of beauty and rhythm that marked Periclean Greece, the love of law and govern-

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ment that characterised ancient Rome, and the perception of unity in diversity that dawned in the India of yore.

The quest for unity with its concomitants of *mettā, avihisā, anukampā,* in a land noted for the extraordinary multiformity of its physical aspect, bewildering variety of its ethnological and liginguistic make-up, and wide divergences of its social and religious organisation, gives in my opinion the key to its history. There might have been cross-currents and under-currents but this seems to have been the, or at least one of the, main currents. The poet-theologians of the Ṛgveda did not fail to take note of the multiplicity of rivers in the land of *Saptasindhu* all losing themselves in one vast sheet of water. The majestic heights with gold-hued crests, diademed with thè starry sky of the north, were synthesised into a single being, Himālaya, compared to Viṣṇu himself in later poetry :—

sthāne tvāṁ sthāvarātmānaṁ
Viṣṇum āhur manīṣiṇaḥ.

All the sacred shrines merge is one holy stream :—

tathā devanadī ce 'yaṁ
sarvatīrthābhisaṁbhṛtā,
gaganād. gāṁ gatā devī
Gaṅgā sarvasaridvarā.

Transcending the superb mountain, the divine stream, the wonderful panorama of Indian topography, and the surging masses of Indian humanity, was conjured up the vision of a united country to whom the river was but a jewelled necklace *(Gaṅgāmauktikahāriṇī),* the mountains but ear-ornaments *(Himavad-Vindhya-kuṇḍalā)* and the inhabitants so many children *(santatiḥ).*

uttaraṁ yat samudrasya
Himavaddakṣiṇañ ca yat
varṣaṁ tad Bhāratam nāma
Bhāratī yatra santatiḥ.

It is not merely the geographical unity of the country that came to be realised in the days of yore. The land of *varṇas* and *jātis,* of castes and sub-castes, evolved the concept of the giant *Puruṣa* in whom all the social orders had their being, and the bold declaration is made in the Book of Peace of the Great Epic :

na viśeṣo' sti varṇānāṁ
sarvaṁ Brāhmam idaṁ jagat.

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The idea of oneness had its influence also in the sphere of politics. The concept of *Puruṣa* and *Mahāpuruṣa* in the domain of sociology, philosophy and religion, had its counterpart in the idea of the *ekarāṭ* or *cakravartin,* a universal emperor, the lord of Jambudvīpa.

> A warrior duly crowned, the chief of men ;
> This earth he conquered and then justly ruled,
> Needing no rod or sword or violence,
> But ordering all impartially, he caused
> The clans to grow in fortune, riches, wealth
> Theirs were all pleasures, his the seven gems.

The idea of such a universal ruler—*rājā viśvajanīna* as he is called in the Vedas—was apparently before the mind of the Atharvanic poet who wrote the famous laud about Parikṣit. The idea came very near realisation when Aśoka welded together the Magadhas, Yonas, Aparāntas, Andhras and other races inhabiting this land into one political unit. Such a *cakravartin* many of his successors—Khāravela, the imperial Guptas, Harṣa, to name only a few—aspired to be. The *cakravartin* became what he was by *parākrama* tempered by a tender regard for the well-being of all creatures that was enjoined by *dharma—porānā pakitī,* the ancient law of India, as it is termed by Aśoka. It is to *parākrama* that the great Maurya attributed his success in making his influence felt throughout Jambudvīpa *(pakamasi hi esa phale).* The famous Allahabad Praśasti speaks of *parākrama* as the only ally and mark of Samudra Gupta *(parākramaikabandhu, parākramāṅka).*

These great rulers of men did use their might to subject "the mutually repellent molecules of the body politic to the grasp of a superior controlling force"—the one in Kaliṅga, the other in Āryāvarta. But they never for a moment forgot that force divorced from *dharma, anukampā, lokānugraha,* the Law of Piety, compassion and kindness to mankind, was barren of fruits. The soul of India had responded to the call of suffering in ages past. Did not the heart of one of the poet-sages of old melt with grief at the sight of a bird being done to death by the cruel missile of a fowler? Did not another national poet loudly proclaim :

> *abhayaṁ sarvabhūtebhyo*
> *yo dadāti mahīpate*
> *sa gacchati paraṁ sthānaṁ*
> *Viṣṇoḥ padam anāmayam.*

"He who grants assurance of safety to all beings goes to the highest station, the holy step of the Supreme Spirit, the home of bliss" ?

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We need not dilate on the kindred teachings of the Jinas and the Buddha. These lessons were not lost upon the universal rulers. The agony of the *krauñca* in the woods had brought into being the *Rāmāyaṇa*. The agony of the men of Kaliṅga was responsible for an *avadāna* not less instructive and inspiring than the story of Rāmacandra's deeds.

Many of the successors of Dharmāśoka did not fully share his religious convictions. Nevertheless they too held up before their minds the ideal of Piyadasi in its essentials. A queen-mother of the second century A.D. takes pride in the fact that her royal son who had warded off the incursions of barbaric intruders, whose chargers had drunk the waters of the three oceans, was at the same time "alien to hurting life even towards an offending enemy", *kitāparādhe pi satujane apānahisā ruci*. Two centuries later a warrior-poet speaks of his master whose fame had, it is said, reached the four seas, as "full of compassion, possessed of a tender heart, *(mṛduhṛdaya, anukampāvat)* the personification of kindness to mankind" *(lokānugraha)*. The tiger-claws of *Vyāghraparākrama* were it seems exchanged for the velvet glove. For was he not *Dharmaprācīrabandha?* Three centuries roll on and we meet another great ruler, who seeks to unite the five Indies and proclaims his faith in the following words,

**karmaṇā manasā vācā*
kartavyaṁ prāṇibhir hitaṁ
Harṣeṇaitat samākhyātan
dharmārajjanamanuttamaṁ.

These words give the clue to the influences that moulded the destiny of India during many a memorable epoch of our history—a quest for unity in a land of diverse colour and culture and attempts at its realisation in the domain of politics by a blend of strength, exertion, love, compassion and adherence to *Dharma*. These are some of the lessons which the ages bring to us as they come peeping in through the window of history. They teach us that the land of our birth has a noble mission. It is rich with its treasures of varied experience, and we should try to be worthy of so precious an inheritance.

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*Vide Epigraphia Indica, Vol. IV, p. 211.

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VAJRA AND THE VAJRASATTVA

By S. B. Das Gupta

In the transformation of the ideology of Mahāyāna to Vajra-yāna the most important factor is the transformation of the idea of Śūnyatā into the idea of the Vajra or the thunder-bolt. The reason for calling Śūnyatā the Vajra is that the Śūnyatā nature of the world is its immutable nature,—it is as immutable as the thunder and so it is called the Vajra. It has been said "Śūnyatā, which is firm, substantial, indivisible, impenetrable, incapable of being burnt and imperishable, is called the Vajra."[1] In the *Hevajra-tantra* also Śūnyatā has been said to be the Vajra because of the impenetrability.[2] The knowledge of the void is the realisation of the Vajra nature of things. One of the most important mantras of the Vajra-yānists used in most of the *Sādhanas,* rituals and ceremonies is,—'I am of the nature of the knowledge of void,—the adamantine nature.'[3] All the *dharmas* including the self, is thus of the nature of the Vajra.[4] When one can realise this Vajra-nature not only of the self, but also of all the beings and entities of the three worlds, one becomes a Vajra-sattva. It has been said,—'By *vajra* is meant Śūnyatā, and by *sattva* is implied pure consciousness ; the identity of the two follows from the nature of the Vajra-sattva'[5]. Here, however, it seems that the pure consciousness *(vijñapti-mātratā)* of the Vijñāna-vādins as associated with the *śūnyatā* (in the form of the absence of subjectivity and objectivity) is the

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1. *dṛḍhaṁ sāram asauśīryam acchedyā-bhedya-lakṣaṇam /*
   adāhi avināśi ca śūnyatā vajra ucyate //
   Advaya Vajra saṁgraha, p. 37 (G.O.S.).
2. *abhedyaṁ vajram ity uktam,* MS. p. 2 (A).
   Cf. also *Jvālāvalī-vajra-mālā-tantra,—śūnyatā vajram ity uktam.* Ms., Bibliotheque Nationale Paris, Sanskrit, No. 47, p. 1 (B).
3. *Oṁ śūnyatā-jñāna-vajra-svabhāvā-tmako'ham /*
4. *vajrā-tmakaḥ sarva-dharmā vajrā-tmako'ham /*
   Sādhana-mālā, Vol. 1, p. 80.
5. *vajreṇa śūnyatā proktā sattvena jñāna-mātratā /*
   tādātmyam anayoḥ siddhaṁ vajrasattva-svabhāvataḥ //
   Advaya-vajra-saṁgraha, p. 24.

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Vajra-sattva. In the *Pañcatathāgata-mudrā-vivaraṇa*[6] of the *Advaya-vajra-saṁgraha,* there is an explanation why the first four Tathāgatas are marked by the miniature of the fifth Tathāgata Akṣobhya and the latter also in his turn by the Vajra-sattva. First, the marking of the

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6. The Pañca-tathāgatas refer to the five presiding deities over the five *skandhas,* viz.*rūpa* (material element), *vedanā* (feeling), *saṁjñā* (conceptual knowledge), *saṁskāra* (synthetic compound mental states) and *vijñāna* (consciousness), [*rūpa-vedanā-saṁjñā-saṁskāra-vijñānam eva ca / pañca-buddha-svabhāvan tu skandho-tpatti-viniścita // — Vajra-vārāhī-kalpa-mahā-tantra,* MS. R.A.S.B. No. 11285, p. 10 (A)] and the deities are Vairocana (presiding over the *rūpa*-element), Akṣobhya (over *vijñāna),* Ratna-sambhava (over *vedanā)* or Ratna-ketu (vide *Śrī-guhya-samāja,* p. 12) or Ratna-nātha (vide, *Pañca-krama,* Ch. I), Amitābha (over *saṁjñā)* or Amitāyus (vide Śrī-guhya-samāja, p. 12), and Amogha-siddhi (over *saṁskāra)* or Karma-nātha (vide *Pañca-krama,* MS., p. 4 (B)). As this conception of the five presiding deities over the skandhas is very important in the study of esoteric Buddhism and as we shall have no opportunity to deal with the pantheon of the Vajrayāna or its iconography, we think it necessary here to say a few words about these deities without entering into controversies over details.

With the growth of docetic conceptions in Mahāyāna Buddhism the five *skandhas* gave rise to the conception of five deities. But in the *Śrī-cakra-sambhāra-tantra* (translated from Tibetan into English by Kazi Dawa-sandup and published under the general editorship of Arthur Avalon) in the chapter on 'the good wishes' these five deities are explained as the five aspects of wisdom coming from the unobstructed mind; they are the *Dhyānī Buddhas,* whereas the presiding deities over the five *skandhas* are Vairocana *(rūpa-skandha),* Vajra-sūrya *(vedanā),* Padmanarteśvara *(saṁjñā),* Rāja-vajra *(saṁskāra)* and Buddha Vajrasattva *(vijñāna)* (Ibid., p. 7). In Northern Buddhism the conception of these five deities formed a new theory of the Dhyānī Buddhas emanating from the Dhyāna or meditation of the ultimate principle which is conceived as the Ādi-Buddha. From the attribute of the possession of five kinds of knowledge *(jñāna)* there proceed five kinds of meditation *(dhyāna)* and from these five kinds of meditation proceed the five Dhyānī Buddhas. The five kinds of *jñānas* are (i) *suviśuddha-dharma-dhātu,* producing Vairocana, (ii) *ādarśa* producing Akṣobhya, (iii) *pratyavekṣaṇa* producing Amitābha, (iv) *samatā* producing Ratna-sambhava and (v) *kṛtyā-nuṣṭhāna* producing Amogha-siddhi. The Dhyāna of creation is called by the general name *'loka-saṁsarjana'* (see Advaya-vajra-saṁgraha, p. 36). In the Tantric literature these five Dhyānī Buddhas are described with their *Śaktis* or divine consorts. Each Dhyānī Buddha has got a particular consort, a particular colour, crest, mudrā (posture) and *vāhana;* each has again a particular Bodhisattva, a *bīja,* a location, and each is again

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four Tathāgatas by the miniature form of the Akṣobhya (representing the *Vijñāna-skandha* or consciousness) implies that all the other four skandhas are mere modes and modifications of the subjective mind,[7]—

associated with a particular *kula* or family. The whole may be illustrated in the following table (the controversies are herein ignored) :—

Dhyānī Buddha	Location	Colour	Crest	Mudrā	Vāhana	Bīja	Śakti	Bodhi-sattva	Kula
Vairocana	central	white	cakra	dharma-cakra	dragon	"a"	Vajra-dhātvīśvarā	Samantabhadra	moha
Akṣobhya	east	blue	vajra	bhūsparśa	elephant	"y"	Locanā	Vajrapāṇi	dveṣa
Ratnasambhava	south	yellow	ratna (jewel)	varada	lion	"r"	Māmakī	Ratnapāṇi	cintāmaṇi
Amitābha	west	red	padma (lotus)	samādhi	peacock	"b"	Pāṇḍarā	Padmapāṇi	rāga
Amoghasiddhi	north	green	viśvavajra	abhaya	Garuḍa	"l"	Āryatārā	Viśvapāṇi	samaya

These five Dhyānī Buddhas are again associated with the five material elements *(pañca-bhūta)* viz., earth *(kṣiti)*, water *(ap)*, fire *(tejas)*, air *(marut)* and ether *(vyoma)* and also with the five sense-organs of sight, sound, touch, taste and smell. The grade of position of these Dhyānī Buddhas differs in different systems. To this scheme of the Dhyānī Buddhas a sixth is often added,—he is Vajrasattva or Vajradhara with his consort variously called as Vajra-sattvātmikā, Vajra-vārāhī, Prajñā or Prajñā-pāramitā etc., and his *bīja* is *"hum"* (cf. *tan-madhye tu huṁkāraṁ vajra-sattva-svarūpakam.* Herukatantra, MS. R.A.S.B., No. 11279, p. 28 [A]).

[See *Śrī-Guhya-samāja, Advaya-vajra-saṁgraha,* Ch.S on *Pañcatathāgatamudrā-vivaraṇa* and *Pañcākāra, Hevajra-tantra,* Ch. IX, *Sampuṭikā,* Ch. I, *Pañca-krama* Ch. I, *The Gods of Northern Buddhism* by A. Getty, *Buddhist Iconography* by Dr. B. Bhattacarya, pp. 1-8, and *An Introduction to Buddhist Esoterism* by Dr. B. Bhattacarya, Ch. XIII.].

7. Cf. also :—*rūpa-vedanā-saṁjñā-saṁskāra-skandhā-tmakā vairocanaratnasambhavā-mitābhā-moghasiddhayo vijñāna-mātratā iti pratipādanāya akṣobhyeṇa mudryante iti /*

Pañcākāra, Advaya-vajra-saṁgraha, p. 42.

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they are the constructions from the consciousness. But this Vijñāna[8] also is not the ultimate reality,—pure consciousness which is absolutely free from the notions of the *grāhya* and the *grāhaka* is the ultimate reality,—and this ultimate principle of void is the Vajrasattva, and therefore even Akṣobhya is marked by the miniature figure of the Vajrasattva. This Vajrasattva is not merely of the nature of Śūnyatā, —it is a non-dual state of Śūnyatā and Karuṇā combined together, and to imply that the void-consciousness is also of the nature of an identity of both Śūnyatā and Karuṇā, the Akṣobhya is marked by the Vajrasattva.[9] Thus the Vajrasattva is identified with the Bodhicitta. It has been said that when Prajñā or the *śūnyatā*-knowledge commingles with universal compassion, there remains no thinker—no thinkable—no thought : this is the state of non-duality—this is called the Bodhicitta,—this is the Vajra,—the Vajrasattva—the perfectly enlightened one *(sambuddha)*—it is perfect wisdom.[10] This Vajrasattva is saluted as the *śūnyatā*-essence, free from all imaginations, Omniscient and pure wisdom.[11] He is the abode of all merits,—he is of the nature of beings.[12] His nature has been described in the Mahā-samaya-tantra as the being without origination and destruction ; he is all good, the soul-substance of all, the enlightened one in the three elements,—he includes in him all the static and the dynamic.[13] Perfect knowledge is his only eye,—he is the stainless embodiment of knowledge—pure, all, all-pervading and moving everywhere,—the subtle seed (of all creation)—the immutable.[14] He eternally belongs to all the elements, to all the beings—he remains pervading all the bodies in the form of the flow of consciousness *(citta-dhārā)*. He is immutable, unthinkable, pure, passionless, perfect void like the sky free from existence and

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8. *"Vijñāna"* here seems to be taken in the sense of 'awareness' in contrast to *"vijñapti"* which is pure consciousness.

9. *vijñānasya naiḥsvabhāvyasya śūnyatā-karuṇayos tadātmaka(tvaṁ) ca pratipādayitum akṣobhyo'pi vajra-sattvena mudryate. Ibid.*, p. 42.

10. *etad advayam ity uktaṁ bodhicittam idaṁ paraṁ /*
vajraṁ śrī-vajrasattvaṁ ca sambuddho bodhir eva ca //
Prajño-pāya-viniścaya-siddhi, Ch. IV, Verse 17.

11. *Ibid.*, Ch. III, verse 9. 12. *Ibid.*, Ch. V, verse 45. Cf. also,—
sa caiva sarva-bhāvena sarvadā samavasthitaḥ /
anādi-nidhanaḥ sattvo vajrasattvaḥ paraṁ sukham //
quoted in the *Jñāna-siddhi,* Ch. XV, verse 39 ; also Advaya-samatā-vijaya.

13. *Vide Jñāna-siddhi,* p. 84.

14. *jñānaika-cakṣuramalo jñāna-mūrttis tathāgataḥ /*
niṣkalaḥ sarvago vyāpī sūkṣma-bījam anāsravaḥ //
Quoted in the *Jñāna-siddhi,* Ch. XV, verse 45.

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non-existence.[15] In the Sambaratantra[16] we find that the Bodhicitta, which is the Vajra, is the universal Buddhahood, so to attain it is to attain Buddhahood *(sarva-buddhatvam)*. He who realises this Vajra-sattva in the self realises himself everywhere in all aspects for all time as the universal all-pervading enlightened one.[17] Elsewhere also we find that the Vajra-sattva is of the nature of all existence *(sarva-bhāva-svabhāva)*, he is the universal Buddhahood, the great lord,—the self-originated,—residing in the heart of all. He who makes himself free from all mentations attains this Buddha-hood and realises himself in all that exists, animate or inanimate.[18] In short, the self as the Vajra-sattva pervades the universe and as one with all that exists and does not exist,—this universal perfect Buddhahood is the Dharmakāya.

This monistic conception of the Vajrasattva is found described in various ways with various attributes in the Buddhist Tantras. In the *Sādhana-mālā* we find that the Vajra-sattva is of the nature of infinite bliss *(mahā-sukha)*.[19] This is a great innovation which moulded the whole system in a different form. He is not only *mahā-sukha*, but is filled with deep compassion for the whole universe, and it is the self which is this Vajrasattva.[20] In the *Vyakta-bhāvānugata-tattvasiddhi* the Lord Vajrasattva is saluted as the self-intuited Lord, the Lord without parallel, all-moving, all-pervading, the only agent, the lord of destruction, the lord supreme of the world,[21]—the revealer of all potentialities. Elsewhere he is saluted as the Śūnyatā-essence, free from all constructive imagination, producing right knowledge ; he is perfect wisdom personified ; he is the remover of the illusion of the world, the preacher of the pure truth, he is born of the non-essential nature of the *dharmas ;* he is Bodhicitta, from him come all the perfectly enlightened ones, all the Bodhisattvas, all truth and all the highest moral virtues *(pāramitā-guṇa)*. He is the three jewels, the great way to salvation *(mahāyāna)*, the reality in all the static and the

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15. *Śrī-vajra-maṇḍalā-taṅkāra,* quoted in the *Jñāna-siddhi,* p. 84.
16. Quoted in the *Jñāna-siddhi,* p. 86.
17. *Jñāna-siddhi,* Ch. XV, verse 52.
18. *Ibid.,*
19. P. 27 (G.O.S.).
20. P. 581 (G.O.S.).
21. *pratyā-tma-vedyo bhagavān upamā-varjitaḥ prabhuḥ /*
sarvagaḥ sarva-vyāpī ca kartā hartā jagat-patiḥ //
śrī-mān vajrasattvo'sau vyakta-bhāva-prakāśakaḥ /
Vyakta-bhāvā-nugata-tattva-siddhi, MS, (Central Library, Baroda No. 13124), p. 91(A).

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dynamic,—he is all that are the transformations of the three elements.[22] In the Hevajra-tantra we find, "The impenetrable (void) is the 'Vajra' and 'sattva' implies the unity of the three worlds ; he who is full of this wisdom is called the Vajra-sattva. He is called the Mahā-sattva as he is full of the bliss of infinite knowledge ; and as he is always engaged in the right method of religious observances *(samaya)*, he is called the Samaya-sattva ; as he is eternally associated with the disciplinary practices for the attainment of wisdom, he is called the Bodhisattva ; and as associated with perfect wisdom he is called the Jñānasattva."[23] Though the Vajra-sattva is free from all existence and non-existence, he, nevertheless, is endowed with the potency of all the forms and existence.[24]

The conception of Vajra as described above will explain the name Vajrayāna, which is usually applied to Tantric Buddhism in general,

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22. *namas te śūnyatā-garbha sarva-saṅkalpa-varjita /*
sarva-prajñāna-sandoha jñāna-mūrtte namas tu te //
jagad-ajñāna-vicchedī śuddha-tattvā-rtha-deśakaḥ /
dharma-nairātmya-sambhūta vajra-sattva namas tu te //
ratna-trayaṁ mahāyānaṁ tattva-sthāvara-jaṅgamam /
trai-dhātukam idaṁ sarvaṁ jagad-vīra namas tu te //
Samputikā, MS. (R.A.S.B. No. 4854) p. 12(B). Cf. also :—
su-viśuddha-mahā-jñānaṁ sarva-deva-svarūpakam /
vajra-sattva iti khyātaṁ paraṁ sukham udāhṛtam //
svayambhū-rūpam etat tu dharma-kāya-svarūpakam /
tasyaiva sahajā prajñā sthitā tadgata-rūpiṇī //
Ibid., MS. p. 48(B).

23. *abhedyaṁ vajram ity uktaṁ sattvaṁ tri-bhavasyaikatā /*
anayā prajñayā yuktaṁ vajra-sattva iti smṛtaḥ //
mahā-jñāna-rasaiḥ pūrṇo mahāsattvo nigadyate /
nityaṁ samaya-pravṛttatvāt samaya-sattvo vidhīyate //
bodhi-caryā-samāsena bodhisattvaṁ nigadyate /
prajñā-jñāna-samāyogāt jñāna-sattvas tathāgataḥ //
MS. (R.A.S.B. No. 11317), p. 2(A).

It is said in the *Jvālāvalī-vajramālā-tantra* that Vajra is *śūnyatā* and *sattva* means the manifestation in form :
śūnyatā vajram ityuktam ākāraḥ sattvam ucyate /
tādātmyam anayor aikyaṁ vajrasattva iti smṛtaḥ //
MS. Bibliothèque Nationale, Sans. No. 47. p. 1(2).

24. *bhāvā-bhāva-vinirmukto vajra-sattvaḥ sucintitaḥ //*
sarvā-kāra-varo-peto asaicānaka-vigrahaḥ /
Pañca-krama, MS. p. 27(A).

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Vajrayāna, therefore, really means the śūnyatā-yāna or the vehicle of vacuity, and all the gods and goddesses, practices, rites and ceremonies —even the articles of rituals, worships and ceremonies of Vajrayāna— are all marked by this Vajra, which served as the stamp, as it were, of the sect.

It may be recalled in this connection that the Dharma-kāya Buddha as the unity underlying all existence, or the cosmic or ontological principle underlying the universe as a whole is the highest reality of Mahāyāna Buddhism. This Dharma-kāya of the Mahāyānists was replaced by the conception of the Vajra-sattva, or the Vajra-kāya, of the Vajrayānists. The Vajra-kāya has often been identified with the Dharma-kāya, but often it seems that this Vajra-kāya is a fourth body *(kāya)* added to the three kāyas of the Mahāyānists, and in the Sahajiyā sect, or the Sahajayāna, which is a mere off-shoot of the Vajrayāna school, the Vajra-sattva or the Vajra-kāya has been transformed as the Sahaja-kāya, which is decidedly a fourth body conceived after the Dharma-kāya. A little thought over the nature of the Vajra-sattva described above will reveal the fact that the conception of this Vajra-sattva is exactly the same as the monistic conception of the Upaniṣadic Brahman. It is a well-known fact that Mahāyāna Buddhism was gradually coming closer and closer to the Upaniṣadic ideas and that the Vedāntic ideas were tacity implied in the Śūnya-vāda and Vijñāna-vāda doctrines. But what was tacitly implied in Mahāyāna was fully developed, consciously or unconsciously, in the hands of the Vajrayānists. The monistic conception of Brahman was already there in the conception of the Dharma-kāya-Buddha, and this conception finds its full expression in the conception of the Vajra-sattva, who is the pure consciousness purged of all the impurities of subjectivity and objectivity; he is pervading the whole universe—is the inner principle of all the dharmas—the unity in diversity; he is a Being of infinite wisdom and merit as well as of universal compassion—he is the Lord Buddha. It is needless to say that this conception of the Vajra-sattva differs in no way from the Upaniṣadic conception of the Brahman. As a matter of fact this Vajra-sattva is generally taken in all the Buddhist Tantras as the Supreme Being and in many of the Tantras salutations are offered to him at the beginning of the text in terms which are equally applicable to the Upaniṣadic Brahman also.[25] It is also an interesting fact

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25. Cf. the salutation at the beginning of the *Pañca-krama* :—
trailokyā-cāra-muktaṁ gagana-samagataṁ sarva-bhāva-svabhāvaṁ
durbodhaṁ durvicāraṁ sva-para-hitatamaṁ vyāpinaṁ nirnimittam //
śuddhaṁ śāntaṁ viviktaṁ parama-śivamayaṁ yoginām eva gamyam /

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to note that all the works of Tantric *Saṅgīti*-literature[26] open with a galaxy of the Buddhas, Bodhisattvas and innumerable other heavenly, terrestrial as well as ghostly beings assembled to hear the words of the Lord *(bhagavān)* who is often explicitly said to be the Vajra-sattva.[27]

The most striking feature of Vajrayāna associated with this conception of the Vajra-sattva is the importance given to the self. According to the Vedānta the Brahman, who is identical with the universe, is to be realised within. The identity of the self with the Brahman is the realisation of the Brahman. Nothing is outside, everything is to be searched and realised in the self within. Thus there is the identity of the universe with the Brahman and the identity of the Brahman with the self. This is the stand-point also of the Vajra-yānists—and still more particularly of the Sahajiyās. It is emphatically said in the *Jñāna-siddhi* that our *Bodhi*-mind, which is of the nature of the Vajra, is itself the universal Buddhahood ; so universal Buddhahood should be realised through conceiving all things as the self.[28] In such

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Cf. also :—

namo vajra-sattvāya /
praṇipatya jagan-nāthaṁ sarva-jina-varārcitam /
sarva-buddhamayaṁ siddhi-vyāpinaṁ gagano-pamam //
sarvadaṁ sarva-sattvebhyaḥ sarvajñaṁ varavajriṇam /
bhaktyā'haṁ sarva-bhāvena vakṣye tat-sādhanaṁ param //

Jñāna-siddhi, Ch. I, verse 1-2.

Cf. also—the salutations at the beginning of (1) *Advayasiddhi* (MS. C.L.B. No. 13124), *Tattva-siddhi* (MS. C.L.B. No. 13124), *Acintyā-dvaya-kramo-padeśa* (MS. C.L.B. 13124), *Catur-mudrā* (MS. C.L.B. 13124), *Vajrayāna-sādhanā-ṅgāni* (MS. R.A.S.B., No. 4837), *Ṣoḍaśa-mānasī-bhava-cakra* (MS. R.A.S.B., No. 10741 B), etc.

26. The Saṅgīti is the type of Buddhist literature which invariably opens with an assembly of the faithful devotees to whom Lord Buddha would preach all truth, and this type of literature also invariably opens with a sentence like this :—*evaṁ mayā śrutam ekasmin samaye* etc. (Cf. *Gandha-vaṁśa,* Pali Text Book Society.) These Buddhist Tantras are called the *Buddhavacanas* (or the sayings of the Buddha) and in Tibetan translations they form the Kangyur collection while the translations of the texts, which are composed by the Buddhist Ācāryas themselves, form the Tangyur collection.

27. Cf. *śastā-sarva-buddha-bodhisattvānāṁ sarva-tathāgatānāṁ ca sa eva bhagavān mahā-vajra-dharaḥ sarva-buddha-jñānā-dhipatir iti /*
Śrī-Guhya-samāja. Ch. XVII, p. 138 (G.O.S.).

28. *bodhicittam idaṁ vajraṁ sarva-buddhatvam ātmanaḥ /*
tasmāt sarvā-tmya-yogena sarva-buddhatvam āpnute //
Ibid., Ch. XV, verse 47.

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a stage a man realises himself in all things, everywhere, in all aspects by all means and for all time, and he realises the universalised self as the universal perfectly enlightened one.[29] This realisation of the self as the highest being is the realisation of the self as the god *(devatā)* and the process is technically called the *'svādhi-daivata-yoga'*.[30] It is emphatically prescribed that the self should be realised as the God and then it should be worshipped with all the paraphernalia of rites and rituals.[31] In the *Prajñopāya-viniścaya-siddhi* it is said that the lord is of the nature of all existence in the form of the Bodhicitta; he is the Lord, the holder of the thunder, and so the self itself is the God.[32] It is found in most of these Sādhanas that gods and goddesses are first of all to be thought of on the solar or the lunar disc or on the lotus, but the whole group is then to be meditated on within as identical with the self. The *Svādhiṣṭhāna-karma* of the *Pañca-krama* gives a very clear exposition of this theory of self-worship. The Yogin is first of all to meditate on the nature of the world, and through deep concentration of the mind to realise the nature of the phenomenal world as purely illusory; then he is to realise the Vajra-sattva who is free from all the categories of existence and non-existence, who is endowed with all the forms, yet of whom no form can be conceived, and then it is added that to realise the self is to realise this Vajra-sattva. The self is described here as the all-powerful, the universal Buddhahood, and, therefore, it has been prescribed that with all care the self should always be worshipped.[33] All the *mantras* and *mudrās* and *maṇḍalas*—everything should be applied to the worship of the self. The chapter concludes with the injunction that

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29. *sarvatra sarvataḥ sarvaṁ sarvathā sarvadā svayam /*
sarva-buddhamayaṁ siddhaṁ svamātmānaṁ prapaśyati //
Ibid., Ch. XV, verse 52.

30. Cf. *svādhidaivata-yogena sarvam ekaṁ vikalpayet.*
Abhidhāno-ttara, MS. (R.A.S.B., No. 10739), p. 7(A).

31. *sarva-bhogo-pabhogai[śca] sevyamānair yathāsukham /*
svādhi-daivata-yogena svam ātmānaṁ prapūjayet //
Ch. XV, verse 54.

32. *sarva-bhāva-svabhāvo'yam bodhicitta-svarūpataḥ /*
sa eva bhagavān vajrī tasmād ātmaiva devatā //
Ch. V, verse 33.

33. *ātmā vai sarva-buddhatvaṁ sarva-sauritvam eva ca /*
tasmāt sarva-prayatnena hy ātmānaṁ pūjayet sadā //
MS., p. 27(B).

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everything should first of all be realised in its *śūnyatā* nature and then should be thought of as the self.[34] This realisation of the self in all as of the immutable and all-pervading nature is the *'svādhiṣṭhāna'* (affirmation of the self) and this *'svādhiṣṭhāna'* is the secret of all yoga.[35]

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34. *bahunātra kim uktena vajra-yoge tu tattvataḥ /*
yad yad ālambayed yogī tat tad ātmaiva kalpayet //
Ibid., MS. p. 27(B).

35. *Ibid.,* MS. p. 28(B).

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AN ACCOUNT OF THE FIFTYSIX COUNTRIES IN AND ON THE BORDERS OF INDIA

By DINES CHANDRA SIRCAR

There is a MS. entitled *Ṣaṭpañcāśad-deśa-vibhāga* (G. 9660 ; foll. 1B–3B) in the library of the Royal Asiatic Society of Bengal. While entering it in the *Descriptive Catalogue of Sanskrit Manuscripts in the Government Collection under the care of the Asiatic Society of Bengal* (Vol. IV, 1923, pp. 35f.), Pandit H. P. Sastri remarked that it may "be part of some Tantra"; but he did not try to find out the Tantra to which it belongs. The *Ṣaṭpañcāśad-deśa-vibhāga* is however actually the seventh Paṭala of Book III of the *Śaktisaṅgama-Tantra.* There are four fragmentary MSS. of this Tantra in the Society's library ; but only one of them (323/55E4 ; foll. 209A–212A) contains the section in question. A few years ago, Book I (Kālī-Khaṇḍa) of the *Śaktisaṅgama-Tantra,* edited by Dr. B. Bhattacharya, was published in the Gaekwad Oriental Series ; but the remaining Books are still in MSS. Dr. Bhattacharya, who is the Director of the Oriental Institute, Baroda, has kindly sent me, at my request, a copy of the *Śaktisaṅgama-Tantra,* Book III, Paṭala vii. His letter to me dated the 2nd April, 1941, reads : "This reading is based on four MSS. ..... We have in our library only one MS. of the *Śaktisaṅgama-Tantra ;* but the readings found in it contain omissions and errors which are corrected with the help of other MSS. I feel that the accompanying reading is fuller and free from errors as far as the MS. material permits." In my edition[1] of the *Ṣaṭpañcāśad-deśa-vibhāga* published here, I have therefore utilised the following three MSS :—

A—MS. of the *Ṣaṭpañcāśad-deśa-vibhāga* in the library of the R.A.S.B. (No. 9660).

B—MS. of the *Śaktisaṅgama-Tantra* in the library of the R.A.S.B. (No. 323).

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1. In the introduction as well as in the notes on the text and the countries, I have only tried to bring out the most important points and have usually avoided detailed discussions which are reserved for a future occasion. For some suggestions I am indebted to Prof. H. C. Raychaudhuri and for some help to Mr. S. Chatterjee.

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C—Copy of the MS. of the *Śaktisaṅgama-Tantra,* Book III, Paṭala vii, kindly supplied by Dr. B. Bhattacharya.

The *Śaktisaṅgama-Tantra* to which the *Ṣaṭpañcāśad-deśa-vibhāga* belongs is a late work that is roughly assigned to the 17th century. In his introduction to the *Kālīkhaṇḍa* (Book I of the *Śaktisaṅgama-Tantra),* Dr. B. Bhattacharya assigns the work to the period between 1555 and 1607 A.D. or roughly to *circa* 1581 A.D. (ib. p. vii). This date is however based on the supposition that "in the *Tantrasāra* by Kṛṣṇānanda Āgamavāgīśa (written sometime after A.D. 1577) the *Śaktisaṅgama-Tantra* is largely quoted" (p. vi). As a matter of fact, there is not a single quotation from the *Śaktisaṅgama* in the *Tantrasāra.* The *Ṣaṭpañcāśad-deśa-vibhāga* (verse 11), on the other hand, refers to the inclusion of Ujjayinī in the country of Mahārāṣṭra. This seems to point to the Marāṭhā occupation of Mālwā under Bājī Rāo I (1720-40 A.D.). V. 16 again speaks of Karṇāṭa in the sense of "the Carnatic" and not of the Kanarese country. We know that the successors of Veṅkaṭa II (1630-42) of the Āravīḍu dynasty of Vijayanagar kings even though they ruled a small tract in the east coast and had little or no authority over the Kanarese country, still called themselves "lords of Karṇāṭaka." The verse seems to point to a date when the name Karṇāṭaka had become stereotyped as the designation of a part of the east coast. This was done possibly about the time when Zulfiqār 'Ali Khān (1692-1703 A.D.) was created the "Nawab of the Karṇāṭaka" by the Mughal emperor Aurangzīb (see *infra).* If these suggestions are correct, the *Ṣaṭpañcāśad-deśa-vibhāga* cannot be assigned to a period earlier than the first half of the 18th century. The MS. of the Tantra, here marked B, contains the date Śaka 1674=1752 A.D. when possibly the MS. was copied.

Ṣaṭpañcāśad-deśa-vibhāga belongs to that class of works which is called the Gazetteer literature in Sanskrit and on which Pandit H. P. Sastri wrote an interesting but short paper in *J.B.O.R.S.,* IV, pp. 14-25. It gives an account of 56 countries in and on the borders of India. The list is drawn from the pilgrim's point of view and most of the localities mentioned are holy places. The majority of the localities are again Śaiva and Śākta *tīrthas* and this fact indicates Tantric influence. The importance of the number 56 is however not determined. This number is found adhered to in some other works of the class. The earliest work containing a list of 56 countries seems to be the *Candragarbha-sūtra* or *Candragarbha-vaipulya* (translated into Chinese by Narendrayaśa in 566 A.D., see Bagchi, *Canon Bouddhique,* I, p. 270) mentioning them in connection with Buddha's manifestations in the Jambudvīpa. All of them cannot be identified; "but apparently less than half are within India proper" (see Elliot, *Hinduism and Bud-*

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dhism, III, p. 215 ; Lévi, *B.E.F.E.O.,* V. p. 261f). It has been suggested that the *Sūtra* was composed or re-edited in Central Asia ; it is therefore possible that the importance attached to the number 56 is essentially foreign. Similar lists are found in some other medieval Tantric texts ; e.g., the *Sammoha Tantra* (composed before 1450 A.D. according to Gode, *A.B.O.R.I.,* XIX, p. 184f.) gives two lists of 56 countries.[2]

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2. कादौ षट्पञ्चाशद्देशाश्च(देशा) हादावपि तथा प्रिये ।
तद्देशशक्तिसंयोगस्त(न्त or गात्त) द्राज्यमिति कीर्त्तितम् ॥
तत्संगमजपेणै (?) व तद्देश राज्यमाकृयात् (?) ।
तत्रादौ कादि. देशश्च(शाश्च) कथ्यते (न्ते) परमेश्वरि ॥
अङ्गवङ्गौ कलिङ्गश्च कालिङ्ग(ङ्गः) केरलस्तथा ।
काश्मीर(रः) कामरूपश्च महाराष्ट्रोऽथ एव च ॥
सौराष्ट्रो द्राविडश्चैवं(व) तैलिङ्गमलयाद्र(द्रि)कौ ।
कर्णाटावन्त्य-वैदर्भ-सर्पा(प्ता ?) भीर(राः) समालवा(वाः) ॥
चौ(चो)ल-यां(पां)चाल-कांबोज (जाः) वैराद्र(ट्)पाभ्यां(ण्डौ) विदेहभूः ।
वाहीकश्च किरातश्च कैकटा(कर्वटा)वन्त्यकौ (?)तथा ॥
ऐराक भोटान्त-चीन(णा) महाचीनस्तथैव च ।
नेपाल(लः) शोलहट्टश्च गौड़-कोशल-मागधा(धाः) ॥
श्रो(उ)त्कलाः(ल)-कुन्तला(ल)-हूनाः(णाः) कोङ्कणः केकयस्तथा ।
शूरसेनः कौरवा(व)श्च सिंहला(ल,श्च पुलिन्द्रका(कः) ॥
कच्छ-सेवन-मद्राश्च सौवीर-लाट-बर्ब्बराः ।
मत्स्या(स्यः) सैन्धव इत्येत(ते) षट्पञ्चाश(शत्) प्रकीर्त्तिता(ताः) ॥
कादिदेशाः समाख्याता हादिदेशाः (शान्) शृणु प्रिये ।
अङ्ग-वङ्ग-कालिङ्ग(ङ्गाः) स्यात् कालिङ्गः स्यात् सु(=सौ)वीरक(कः) ॥
काश्मीरश्चैव काम्बोजा(जः) सौराष्ट्रो मगधस्तथा ।
महाराष्ट्रो मालवस्तु नेपालः केरलस्तथा ॥
चोल-यां(पां)चाल-गौड़ाश्च मलयांड(याल)श्च सिंहल(लः) ।
व्योङ्कविडो व्योन्तश्चैव (? काणाटो लाट एव च ॥
मलाटश्चैव पानाटाः पावाशान्धक (?) पुलिन्दक(का)ः ।

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The geographical informations derived from the *Ṣaṭpañcāśad-deśa-vibhāga* are very interesting, and in many cases they throw welcome light on some problems (cf. verses 3, 21, 39, 41, 44, etc.). But the difficulties in dealing with the text are also numerous. The sources of the author's informations are works like the epics, the Purāṇas and the Tantras and above all traveller's or pilgrim's tales. The author might himself have visited some of the places on pilgrimage. The MSS. he relied on may have misled him in some cases with their wrong readings, and many such mistakes may be also due to the copyists of his work (cf. verses 5, 43, 46, etc.). Moreover, the author, like many of the Tantric writers of his time, seems to have only an insufficient knowledge of Sanskrit. Partly due to this fact and partly due to the inadvertence of the copyists, a great confusion has been made with reference to the actual position of many countries and others bordering on them. As will be indicated below in the notes on the countries, many of these mistakes can be quite easily corrected (cf. verses 19, 20, 23, 39, 47, 48, etc.). It must however be admitted that we cannot expect in all cases *accurate* geographical knowledge from our author who had to depend on a pilgrim's knowledge and had no opportunity of consulting any scientifically compiled text on geography or a scientifically prepared map. In some cases therefore we find that the position given of one country in relation to another

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हु(हू)ण-कौरव-गान्धार-विदर्भाः सविदेहका(काः) ॥
वाह्लीक(क्को) वर्वरो देवि केकयः कोशलोऽपि च ।
कुन्तलश्च किला(रा)तश्च शूरसेनश्च सेवर(नः) ॥
वना(कर्णा)ट(ष्ट)ङ्क(or ङ्ग)णश्चैव कोङ्कणा(णो) मत्स्यमद्रकौ ।
मैड़(मरु)-सैन्धव-सन्धथाः (?) पार्श्वकौकौ (पारसीकः ?) ततः स्मृतौ ॥
ड्योर्जाल-यवनौ देवि जल-जालन्ध साल्वला (?) ।
सिन्धुश्च वंद्यदेशाश्च हादि-पर्य्याय-बाधका(वाचकाः) ॥

Quoted by P. C. Bagchi, *Studies in the Tantras,* pp. 97-98, from a late Newari MS. in the Durbar Library, Nepal. The text is faulty; but it can be partially corrected with the help of other materials and may also be used in correcting the latter. It is however possible that some of the mistakes belong to the original. The *Kādi* and *Hādi* groups of Tantric traditions are given 9 subdivisions each. There is also a fourfold division: (1) *Kerala* extending influence from Aṅga to Mālwā, (2) *Kāśmīra* from Madradeśa to Nepāla; (3) *Gauḍa* from Śilahaṭṭa to Saindhava; and (4) *Vilāsa* prevalent everywhere.

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is only partially true or even wrong (e.g. verse 18 where "east" seems to be used for "south-east"). Owing to the same reason, we get some countries as abutting on each other, though they are actually separated by other countries (cf. verses 13, 25, 33, 57, etc.). The author generally mentions places, usually those sacred to Śiva and Pārvatī, as boundaries of the countries. Some of these places are difficult to identify, and in many cases the name of a god or goddess in a particular temple actually indicates the whole district round the shrine (cf. verses 12, 13, 31, 39, etc.). This difficulty in enhanced by the fact that while in some cases the boundary mentioned is to be included in the country, in others it is to be excluded from it (cf. verses 9, 11, 14, etc.). In many cases again more than one country are mentioned in the same area and they overlap one another (cf. verses 3, 4, 12, 14, 42, etc.). In view of the above observations, it will be seen that the *Ṣaṭpañcāśad-deśa-vibhāga* only attempts a rough estimate of the extents of countries, and sometimes the extents recorded are wider or narrower than they are actually.

The 8th Paṭala of the *Śaktisaṅgama-Tantra,* Book III, is also very interesting to the students of ancient Indian geography. It gives an account of the fivefold division of India. The Chinese authors generally refer to the Five Indies, viz. the Northern, Western, Central, Eastern and Southern, and the *Bhuvanakośa* section of the Purāṇas divide the country into Madhyadeśa, Udīcya, Prācya, Dakṣiṇāpatha and Aparānta. The *Kāvyamīmāṃsā* of Rājaśekhara also refers to this fivefold division when it speaks of Pūrvadeśa beyond Vārāṇasī, Dakṣiṇāpatha beyond Māhiṣmatī, Paścāddeśa beyond Devasabhā and Uttarāpatha beyond Pṛthūdaka. The five divisions of India as given in the *Śaktisaṅgama-Tantra* from the Tantric point of view are different. They are Indraprastha, Yamaprastha, Varuṇaprastha, Kūmaraprastha and Devaprastha. I have appended this interesting section to the text of the *Ṣaṭpañcāśad-deśa-vibhāga.* See *infra.*

षट्पञ्चाशद्देशविभागः

(Śaktisaṅgama Tantra, Book III, Chapter VII).

ॐ श्रीगणेशाय नमः ॥[1]

शङ्कर उवाच ।[2]

रहस्यातिरहस्यं हि[3] प्रोक्तं देवि तवाग्रतः ।[4]

देशव्यवस्था देवेशि कथ्यते शृणु यत्नतः[5] ॥ १

1. Not found in B and C.
2. Not found in B and C.
3. C : च
4. Not found in A.
5. B : तत्परः

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वैद्यनाथं समारभ्य भुवनेशान्तगं शिवे ।
तावदङ्गाभिधो[6] देशो यात्रायां न हि दुष्यति ॥ २
रत्नाकरं[7] समारभ्य ब्रह्मपुत्रान्तगं शिवे [7a] ।
वङ्गदेशो मया प्रोक्तः सर्वसिद्धिप्रदायकः [8] ॥ ३
जगन्नाथात् पूर्व्वभागात्[8a] कृष्णातीरान्तगं शिवे ।
कलिङ्गदेशः संप्रोक्तो वाममार्गपरायणः[9] ॥ ४
कलिङ्गदेशमारभ्य पञ्चाष्टयोजनं शिवे ।
दक्षिणस्यां महेशानि कालिङ्गः परिकीर्त्तितः ॥ ५
सुब्रह्मण्यं समारभ्य यावद्देवो जनार्द्दनः ।
तावत् केरलदेशः स्यात्तन्मध्ये सिद्धिकेरलः[10] ॥ ६
रामेश्वरो वेंकटेशो[11] हंसकेरल-बोधकः ॥ ७
अनन्तशैलमारभ्य यावत् स्यादुडुपं पुरम्[12] ।
तावत् सर्व्वेशनामा[13] तु केरलः परिकीर्त्तितः ॥ ८
शारदामठमारभ्य कुङ्कुमाद्रितटान्तकम्[14] ।
तावत् काश्मीरदेशः स्यात् पञ्चाशद्योजनान्तकः[15] ॥ ९
कालेश्वरश्वेतगिरिं[16] त्रिपुरान्नीलपर्व्वतम् ।
कामरूपाभिधो देवि गणेशगिरिमूर्द्धणि ॥ १०
त्र्यंबकं[17] समारभ्य मध्ये चोज्जयिनी शिवे ।
माजारतीर्थं[18] राजेन्द्रे[19] कोलापुरनिवासिनी ॥
तावद्देशो महाराष्ट्रः कर्णाटस्याभिगोचरः[20] ॥ ११

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6. B : °विधो C : दुष्यते
7. A : वज्राकारं ; C : वज्राकरं
7a. C : परे
8. AB : ° प्रदर्शकः
8a. Read जगन्नाथपूर्व.
9. B : राम°
10. A : सिद्ध°
11. A : विकुंठेशो ; B : वैकंटेशो
12. AB : परे
13. A : सर्वेसमानास्त,
14. B : °माधि°
15. BC : °न्तकम्
16. B : केरलेश्वरे ; C : कोलेश्वरं. Read ° श्वराच्छ्वेत° the wrong spelling त्रियम्बकं. Better read त्र्यम्बकेश्वं
17. BC : त्रिपञ्चकं due possibly to
18. B : °तीर
19. B : राजेन्द्र ; C राजेन्द्रः
20. कपाटस्थाभि°

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जगन्नाथादूर्द्धभागे[21] अर्व्वाक् श्रीभ्रमराम्बिका ।
तावदन्ध्राभिधो देशः सौराष्ट्रं शृणु साम्प्रतम्[22] ॥ १२
कोङ्कणात् पश्चिमं[23]तीर्त्वा समुद्रप्रान्तगोचरः ।
हिङ्गुलाजान्तको[24] देवि शतयोजनमाश्रितः[25] ॥
सौराष्ट्रदेशो देवेशि नाम्ना तु गुर्जराभिधः[26] ॥ १३
श्रीशैलन्तु समारभ्य चोलेशान्मध्यभागतः ।
तैलङ्गदेशो देवेशि ध्यानाध्ययनतत्परः ॥ १४
मूकाम्बिकां समारभ्य मलयाद्र्यन्तगं[27] शिवे ।
मलयालाभिधो[28] देशो मन्त्रसिद्धिप्रवर्त्तकः ॥ १५
रामनाथं समारभ्य श्रीरङ्गान्तं वरेश्वरि[29] ।
कर्णाटदेशो देवेशि साम्राज्यभोगदायकः[30] ॥ १६
ताम्रपर्णीं समारभ्य[31] शैलार्द्धं[a] रुत्तरार्द्धतः[32] ।
अवन्तीसंज्ञको[32a] देशः कालिका तत्र तिष्ठति ॥ १७
भद्रकाली महत्पूर्वं[33] रामदुर्गाच्च[34] पश्चिमे ।
श्रीविदर्भाभिधो देशो वैदर्भी[35] तत्र तिष्ठति ॥ १८

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21. Read जगन्नाथ ऊर्द्ध°
22. AC : सादर
23. A : कौंकणासम्मिंस
24. C : °न्तकं
25. B : जन्तुयोजनने शत: ; C : जन्तवो जनलीशत:
26 A : षण्मातुरजराभिध:
27. B : मनपाद्यान्तगं
28. AB : मलपाला° ;
29. BC : विलेश्वरि
30. B : भोम°
31. B : समासाद्य
32. B : शैलार्द्धेषूत्तरोर्द्ध त: ; C : शैलद्वैत्यत्तरतोर्द्ध त:
32a. Usually अवन्ति
33. A : मरुत्पूर्वा. Possibly स्थानात् पूर्वे. Read भद्रकालीदक्षपूर्वे
34. A : दुर्गाच्च
35. C : वैदभास्तव ; A वैदर्भा तत्र

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गुर्जरात् पूर्वभागे[36]तु द्वारकातो हि[37] दक्षिणे ।
मरुदेशो महेशानि उष्ट्रोत्पत्तिपरायणः ॥ १९
श्रीकोङ्कनादधोभागे[38] तापीतः पश्चिमोत्तरे[39] ।
आभीरदेशो देवेशि विन्ध्यशैले व्यवस्थितः ॥ २०
अवन्तीतः पूर्वभागे गोदावर्य्यास्तथोत्तरे ।
मालवाख्यो महादेशो धनधान्यपरायणः[40] ॥ २१
द्राविड़-तैलङ्गयोर्मध्ये[41] चोलदेशः प्रकीर्त्तितः ।
लम्बकर्णाश्च ते प्रोक्ता भेदो ह्यवान्तरो[42] भवेत् ॥२२
कुरुक्षेत्रात्[43] पश्चिमे तु तथा चोत्तरभागतः[44] ।
इन्द्रप्रस्थान्महेशानि दशत्रियोजनोत्तरम्[45] ।
पाञ्चालदेशो देवेशि सौन्दर्यगर्वभूषितः ॥ २३
पाञ्चालदेशमारभ्य म्लेच्छाद्दक्षिणपूर्वतः ।
काम्बोजदेशो देवेशि वाजिराशिपरायणः[45a] ॥ २४
वैदर्भदेशादूर्द्ध्वं च इन्द्रप्रस्थाच्च दक्षिणे ।
मरुदेशात् पूर्वभागे विराटः[46] परिकीर्त्तितः ॥ २५
काम्बोजादक्षभागे[47] तु इन्द्रप्रस्थाच्च[48] पश्चिमे ।
पाण्डुदेशो[49] महेशानि महाशूरत्वकारकः ॥ २६

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36. Read गुर्जरपूर्वभागात्तु.
37 Read द्वारका यस्य.
38. A : श्रीकौङ्क° Read श्रीकोङ्कणस्तु धोभागे
39. AB : पश्चिमे वरे. Read तापी च पश्चिमोत्तरे
40. A : धनधाम°
41. B : तिलङ्ग°. Read तैलङ्गद्रविड़ान्तरे, but the rules of metre are often disregarded.
42. B : °च्चपरान्तरे
43. Read °चैव
44. B : °भारतः
45. A : योजनाद्वयः ; B : योजनद्वये. Read योजनान्तरम्
45a. Read वाजिराजि
46. AC : वैराट्देशः प्रकीर्त्तितः
47. A : भोजा° The word दक्ष is generally used in the text for दक्षिण
48. AB : इन्द्रदेशा°
49. B : पाण्ड्यदेशो ; C : वाम्यदेशो ; corrected to पाण्ड्यदेशो

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गण्डकीतीरमारभ्य[50] चम्पारण्यान्तकं शिवे ।
विदेहभूः समाख्याता तैरभुक्त्यभिधः[51] स तु ॥ २७
काम्बोजदेशमारभ्य महाम्लेच्छात्तु पूर्वके ।
वाह्लीकदेशो[52] देवेशि अश्वोत्पत्तिपरायणः ॥ २८
तप्तकुण्डं[53] समारभ्य रामक्षेत्रान्तकं शिवे ।
किरातदेशो देवेशि विन्ध्यशैले च तिष्ठति ॥ २९
करतोयां समारभ्य हिङ्गुलाजान्तकं शिवे ।
वक्रान्तदेशो[54] देवेशि महाम्लेच्छपरायणः ॥ ३०
हिङ्गुपीठं समारभ्य मत्केशान्तं[55] महेश्वरि ।
खुराशनाभिधो[56] देशो म्लेच्छमार्गपरायणः ॥ ३१
तन्मध्ये चोत्तरे देवि ऐराकः[57] परिकीर्त्तितः ॥ ३२
काश्मीरन्तु समारभ्य कामरूपाच्च पश्चिमे ।
भोटान्तदेशो देवेशि मानसेशाच्च दक्षिणे ॥ ३३
मानसेशाद्दक्षपूर्वे चीनदेशः प्रकीर्त्तितः ॥ ३४
कैलासगिरिमारभ्य[58] सरयूयोनितः परे ।
आमोङ्गान्तं[59] महेशानि महाचीनाभिधो[60] भवेत् ॥ ३५
जटेश्वरं समारभ्य योगिन्यन्तं[61] महेश्वरि ।

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50. B : नीर°

51. B : तिरभुक्ता°. Read °भिधा सा

52. A : वाहिक ; B : वाहीक

53. BC : तत्तत्कुण्डं

54. B : वभक्तान (?)

55. A : मत्कोशान्तं ; B : मत्कशान्तं. Read मक्केशान्तं

56. षुरासना° ; C : खुरासना°. A reads "मत्कोशान्तं महेश्वरि ।" after करतोयां समारभ्य and thus omits the verse referring to वक्रान्तदेश.

57. B : ऐकीरः

58. B : कैलानरं समारभ्य ; C : कैलासतीरमारभ्य

59. A : आमोरंगं ; B : आमारागां.

60. B : °चीनाधिपो

61. B : योगिनिन्तं

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नेपालदेशो देवेशि शिलहट्टं शृणु प्रिये ॥ ३६
गणेश्वरं समारभ्य महोदध्यन्तगं शिवे ।
शिलहट्टाभिधो देशो पर्वते तिष्ठति प्रिये[62] ॥ ३७
वङ्गदेशं समारभ्य भुवनेशान्तगं शिवे[63] ।
गौड़देशः समाख्यातः सर्वविद्याविशारदः ॥ ३८
गोकर्णेशात् पूर्वभागे आर्यावर्त्ताच्च चोत्तरे [63a] ।
तैरभुक्तात्[64] पश्चिमे तु महापूर्य्याश्च पूर्वतः[65] ।
महाकोशलदेशश्च[66] सूर्य्यवंशपरायणः ॥ ३९
कालेश्वरं[67] समारभ्य तप्तकुण्डान्तकं शिवे ।
मगधाख्यो[68] महादेशो यात्रायां न हि दुष्यति ॥ ४०
दक्षोत्तरक्रमेणैव क्रमात् कीकटमागधौ ।
चरणाद्रिं समारभ्य गृध्रकूटान्तकं[69] शिवे ।
तावत् कीकटदेशः स्यादुत्तरो[70] मागधो मतः ॥ ४१
जगन्नाथप्रान्त[71]देशश्चोत्कलः[72] परिकीर्त्तितः ॥ ४२
कामगिरिं समारभ्य द्वारकान्तं महेश्वरि ।
श्रीकुन्तलाभिधो देशो हूणं शृणु महेश्वरि ॥ ४३
कामगिरेर्दक्षभागे मरुदेशाच्चाथोत्तरे ।
हूणदेशः समाख्यातः शूरास्तत्र वसन्ति हि[73] ॥ ४४

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62. Not found in A
63. A : भुवनेशं महेश्वरि ; B : भुवनेशान्तं महेश्वरि
63a Read गोकर्णेशाद्दक्षभागे.
64. A : तैर्भुक्तात्
65. AB : सर्वतः
66. C : °देशः स्यात्
67. AC : व्यासेश्वरं
68. B : मघदा°
69. BC : °न्तगं
70. A : स्यात्तदूर्ध्वं ; B : स्यादूर्ध्वस्तु
71. B : प्रोतर्दश° ; C : प्रोक्तदेश°
72. C : °श्चीत्कलः
73. B : च

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अथ घट्टं[74]समारभ्य कोटीशस्य तु मध्यगः[75] ।
समुद्रप्रान्तदेशो हि कोङ्कणः[76] परिकीर्त्तितः ॥ ४५
ब्रह्मपुत्रात् कामरूपान्मध्यभागे[77] तु कैकयः ॥ ४६
मगधाद्दक्षभागे तु[78] विन्ध्यात् पश्चिमतः शिवे ।
सौरसेनाभिधो[78a] देशः सूर्य्यवंशप्रकाशकः ॥ ४७
हस्तिनापुरमारभ्य कुरुक्षेत्राच्च दक्षिणे ।
पाञ्चालपूर्वभागे तु[79] कुरुदेशः प्रकीर्त्तितः ॥ ४८
मरुदेशात्पूर्वभागे कामाद्रेर्दक्षिणे शिवे ।
सिंहलाख्यो महादेशः सर्वदेशोत्तमोत्तमः ॥ ४९
शिलहट्टात्[80] पूर्वभागे कामरूपात्तथोत्तरे ।
पुलिन्ददेशो[81] देवेशि नरनारायणपरः ॥ ५०
गणेश्वरात् पूर्वभागे समुद्रादुत्तरे शिवे ।
कच्छदेशः समाख्यातः सेवनं शृणु सादरम् ॥ ५१
पुलिन्दादुत्तरे भागे कच्छाच्च पश्चिमे शिवे ।
मत्स्यदेशः समाख्यातः मत्स्यबाहुल्यकारकः ॥ ५२
वैराटपाण्ड्ययोर्मध्ये[82] पूर्वदक्षक्रमेण च ।
मद्रदेशः समाख्यातः माद्रीशाश्तत्र[83] तिष्ठति ॥ ५३

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74. A : अब्धेरर्द्धं ; B : अथत्यदं
75. B : कोटीशस्य वसकगे ; C ; मध्यगे
76. A : कौङ्कणः
77. B : °गत
78. मगधात् पश्चिमायान्तु ? 78a. Usually शूर° or शौर°.
79. A : पाञ्चालात् Read पञ्चालः पूर्वभागे तु or पञ्चालपूर्वभागस्तु
80. A : सिंलात्, evidently for सिंहलात्
81. A : पुलिन्ध्र° ; B : पुलिन्द्र°
82. Better read पाण्ड्यविराटयोर्मध्ये
83. A : माद्रीकास्तत्र ; C : माद्रीतत्त्वाऽत्र. Read माद्रीशस्तत्र, मद्रेशस्तत्र or मद्रेशौ तत्र

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शूरसेनात्[84] पूर्वभागे कण्ठकात्[85] पश्चिमे वरे ।
सौवीरदेशो देवेशि सर्वदेशाधमाधमः[86] ॥ ५४
अवन्तीतः पश्चिमे तु वैदर्भादक्षिणोत्तरे[87] ।
लाटदेशः समाख्यातो वर्वरं शृणु पार्वति ॥ ५५
मायापुरं समारभ्य सप्तशृङ्गात्तथोत्तरे ।
वर्वराख्यो महादेशो सैन्धवं शृणु सादरम् ॥ ५६
लङ्काप्रदेशमारभ्य मक्रान्तं[88] परमेश्वरि ।
सैन्धवाख्यो महादेशः पर्वते तिष्ठति प्रिये ॥ ५७
एते षट्पञ्चाशद्देशा मया प्रोक्ता तव प्रिये । [89]
एतन्मध्येऽपि देवेशि देशभेदास्त्वनेकशः ।
कोटीशः सन्ति देवेशि एते मुख्याः प्रकीर्त्तिताः ॥५८
रहस्यातिरहस्यञ्च गोप्तव्यं[90] पशुसङ्कटे ।
इति सङ्क्षेपतः प्रोक्तं किमन्यच्छ्रोतुमिच्छसि ॥ ५९

SUPPLEMENT[91]

(Śaktisaṅgama Tantra, Book III, Chapter VIII).

श्रीदेव्युवाच ।

देवेश श्रोतुमिच्छामि पञ्चप्रस्थान[92] साम्प्रतम् ।
इन्द्रप्रस्थं यमप्रस्थं वरुणप्रस्थमेव च ।
कूर्मप्रस्थं महादेव देवप्रस्थञ्च पञ्चमम् ॥ १

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84. Read शूरसेन:
85. AB : कण्टकात्. Read कण्टक:
86. A : देश: सर्वोत्तमोत्तम: ; C : °धमोधस:
87. Read पश्चिमोत्तरे
88. A : मच्छान्तं
89. C : °ईशान् मया प्रोक्तान्य भक्तित:. In place of this śloka, A has its concluding verse as :

षट्पञ्चाशन्मिता देशा: मया प्रोक्ता तवानघे ।
तेषां शास्ता भवेद्यो वै चक्रवर्त्ती स उच्यते ॥ (corrected)

90. B : गोप्तकं
91. From B only.
92. Read °प्रस्थानि

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[92a]इन्द्रप्रस्थं महेशानि शृणु वक्ष्ये[93] यथाक्रमम् ।
इन्द्रप्रस्थं महेशानि योगिनीसंयुतम्[94] ॥ २
मथुरा गोकुलं पूर्वे[95] भागे तस्य व्यवस्थितम् ।
वृन्दावनं कोलदेशे हस्तिनापुरमुत्तरे ॥ ३
द्वारका पश्चिमायाञ्च गदावर्त्तस्तु दक्षिणे ।
इन्द्रप्रस्थं मध्यभागे कालिकामुखगोचरम् ॥ ४
द्रावाहीक्षेत्रमुद्दिष्टमिन्द्रप्रस्थं (? तदुच्यते ।
सिंहासनं चाश्वपतेस्तदेव परिकीर्त्तितम् ॥ ५
यमप्रस्थं महेशानि दक्षिणस्यां व्यवस्थितम् ।
सोमेश्वरः पश्चिमायां सप्तशृङ्गात्तु पूर्वगाः[96] ॥ ६
मायापुरं वामभागे व्यङ्कटेशस्तु दक्षिणे ।
यमप्रस्थं भवेन्मध्ये कमलामुखगोचरम् ॥ ७
शङ्खावर्त्तो भवेत्तत्र क्षेत्रं मायाभिधं भवेत् ।
सिंहासनं नरपतेस्तद्दक्षे परिकीर्त्तितः[97] ॥ ८
ततः पूर्वे जगन्नाथः प्रान्ते कविपति भवेत्[98] ।
वारुणाख्यं तथा देवि कथ्यते शृणु साम्प्रतम् ॥ ९
मक्केश्वर[99] पश्चिमायामुत्तरे हिङ्गुला भवेत् ।
त्रैलोक्यविजया देवि दक्षभागे प्रकीर्त्तिता ॥ १०
राजावर्त्तस्तत्रभवेत्तत्र शीतामुखञ्च तत् ।
तदन्ते सागराः सप्त समुद्राश्च तदन्तके ॥ ११

92a Read श्रीभगवानुवाच before this verse. Better read पञ्चप्रस्थानि देवेशि

93. Read वक्ष्ये

94. Read योगिनीपुरसंयुतम्

95. Read पूर्वे

96. सप्तशृङ्गन्तु पूर्वके ?

97. Read °कीर्त्तितम्

98. Read °पतिर्भवेत्

99. Read °श्वरः

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तावत् श्रीवारुणाख्यन्तु[100] प्रस्थं प्रोक्तं मया तव ।
कूर्मप्रस्थं महेशानि कथ्यते शृणु साम्प्रतम् ॥ १२
गोकर्णेश[101] दक्षभागे कामाख्या पूर्वगोचरः[102] ।
उत्तरे मानसेशः स्यात् प्रश्चिमे सारदा भवेत् ॥ १३
त्रिगुणावर्त्तते तद्धि वज्रेस्या मुखमीरितम् (?) ।
षट् पञ्चाछ्याटिचामुण्डागणैर्व्याप्तिन्तु तद्भवेत्[103] ॥१४
पूर्वे वैरजनाथस्तूत्तरेऽमरकण्टकम्[104] ।
काञ्चीपुरं मध्यभागे मोहनावर्त्तमेव च ॥ १५
ललिताया मुखं तच्च विद्यागणविभूषितम् ।
कामाख्यात्र समुद्दिष्टं महामन्त्रविभूषितम् ॥ १६
नवलक्षमहाविद्यासगणे परिभूषितः[105] ।
पञ्चप्रस्थानि देवेशि कथितानि मया तव ॥ १७

THE FIFTYSIX COUNTRIES

1. *Aṅga* (v. 2).

Aṅga is said to have extended from Vaidyanātha upto Bhuvaneśa. Vaidyanātha is no doubt the same as Baidyanāth-dhām in the Santal Parganas District, very near the southern frontiers of the Monghyr and Bhāgalpur Districts, in Bihār. Bhuvaneśa reminds us of the celebrated Bhubaneśwar in the Purī District of Orissa.

The ancient Aṅga country is supposed to have comprised the present Monghyr and Bhāgalpur Districts excluding the extreme northern and southern portions, and its capital Campā is known to have been situated at the confluence of the Ganges and the Campā (mod. Cāndan). The two villages Campānagar and Campāpur, near Bhāgalpur, are supposed to represent the actual site of the ancient

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100. Read तावच्छ्री°. But the rules of *sandhi* and metre are often disregarded.

101. Read गोकर्णेशो

102. Read गोचरा

103. The text of the verse is evidently corrupt. Possibly °च्छतचा° and °र्व्याप्तिन्तु.

104. पूर्वे वैरजनाथस्तु उत्तरे ? or पूर्वे वै चन्द्रनाथस्तु ?

105. °महाविद्याः खगणैः परिभूषिताः ?

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capital of Aṅga. There are however traditions regarding the expansion of the boundary of the Aṅga country especially in the south. The *Kathāsaritsāgara* (25, 35 ; 26, 116 ; 82, 3-16), e.g., refers to the Aṅga city called Vitaṅkapura which was situated on the seasore. The commentary on Vātsyāyana's *Kāmasūtra* places Aṅga to the east of the Mahānadī.

It will be seen that Baidyanāthdhām is situated near the southern limits of the original Aṅga country ; but Vaidyanātha may here indicate the district round the holy place, and the reference to Bhubaneswar may point to the country's extension towards the Bay of Bengal. The verse appears to place Aṅga to the south of the Ganges, and it must be admitted that there is no definite evidence indicating the extention of the Aṅga country to the north of the Ganges. According a MS. of the *Bhaviṣya Purāṇa* (see No. 37 below), Vaidyanātha-Mahādeva lies in the Jāṅgala-Jhārikhaṇḍa country which is to the north of the Dārukeśvar river, to the west of the Bhāgīrathī, between Pañcakūṭa (mod. Pañcakoṭ State in Mānbhūm Dist.) and Kīkaṭa (South Bihār).

2. *Vaṅga* (v. 3)

The country of Vaṅga is described as extending from the sea as far as the Brahmaputra. The sea is no doubt the Bay of Bengal in the South and Brahmaputra, the northern boundary, seems to indicate that portion of the river which bifurcates from the Jumna. Vaṅga therefore included the Eastern part of the Sundarbans in the South and half of the Mymensingh Dist. in the north. The verse seems to exclude the region to the east of the Brahmaputra and the Meghnā (cf. v. 37) and agrees with epigraphic evidence which places the heart of Vaṅga in the Vikramapurabhāga comprising the Munshiganj and Mādāripur subdivisions of the Dacca and Faridpur Dists.

3 & 4. *Kaliṅga* (v. 4) and *Kāliṅga* (v. 5).

Kaliṅga extended from the east of Jagannātha as far as the banks of the Kṛṣṇā. Jagannātha here evidently refers to the celebrated deity at the shrine of Purī in the Purī District of Orissa. It is interesting to note that the Tantric texts recognise Purī as one of the Pīṭhasthānas where the Bhairava is Jagannātha and the Bhairavī Vimalā. That the Purī region was also called Utkala is known from v. 42.

The name Kaliṅga has been used here in the widest sense. The *Mahābhārata* (III, 114, 4) recognises the Vaitaraṇī river as the north-eastern boundary of Kaliṅga, and at the time of Aśoka and Khāravela it certainly comprised the Purī District in the east. At the time of

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the Eastern Gaṅga king Anantavarman Coḍagaṅga, the Kaliṅga kingdom extended from the Ganges to the Godāvarī. Pliny's reference to the Gangaridae as a Kalingae people and the statement in the commentary of the *Kāmasūtra* that Kaliṅga lies to the south of Gauḍaviṣaya appear to indicate the extension of ancient Kaliṅga as far as the Ganges. The expansion of the kingdom from the Ganges to the banks of the Kṛṣṇā was possible only at the time of Kapilendra *(circa* 1430-64 A.D.) who captured Warangal and Koṇḍaviḍu in 1459 A.D. In 1455, a member of his family gave away a village near Bezwāḍa on the Kṛṣṇā *(I.A.,* XX, p. 390). His successors also continued to rule over a large portion of Southwest Bengal.

On the southern confines of Kaliṅga was a country called Kāliṅga extending over 13 or 40 yojanas. We do not know of any country of this name to the south of the Kṛṣṇā. The author probably suggests that the southern fringe of the Kaliṅga country was known as Kāliṅga.

5. *Kerala including Siddhikerala* (v. 6).

The Kerala country is said to have extended from Subrahmaṇya up to Janārdana and Siddhikerala to have formed a part of Kerala. Roughly speaking, Kerala comprised the coastal region from Calicut to Cape Comorin.

There are many temples of Subrahmaṇya (Kārttikeya) in South India such as that of Tanjore, the Palni hill, etc.; but it is difficult to determine which of them is meant. The same is the case with Janārdana, as we can find out several Janārdana temples, e.g. Śrī-Janārdanasvāmin near Varkala (between Quilon and Trivandrum), Janārdana in the Nizam's dominions between the Ellora and Belgaum railway stations ; etc. etc. It is however possible that Subrahmaṇya here indicates the village of that name in South Kanara Dist., famous for its temple and cattle fair, and Janārdana is the temple at Varkala or Varkkallai.

6. *Haṃsa-Kerala* (v. 7).

The territory including Rāmeśvara and Veṅkaṭeśa is called Haṃsa-Kerala, a name otherwise unknown. The shrine of Rāmeśvara and the celebrated Veṅkateśvara temple at Tirupati are quite well-known ; but it is not known whether they are actually intended. If however the verse refers to the country from Rāmeśvara to Tirupati, the name Haṃsa-Kerala would appear to indicate the same territory as Drāviḍa.

7. *Sarveśa-Kerala* (v. 8)

The Kerala country designated by the name Sarveśa extended from the Anantaśaila up to the city called Uḍupa. The Ananta hill

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may refer to Trivandrum which is known as Anantaśayana or Anantapura. It is possible that the place is referred to by Varadarāja (17th century) whose *Saṃskṛta-mañjarī* speaks of the Southern tīrthas—Janārdana-kṣetra, Gokarṇa-kṣetra (in N. Kanara), Anantasena (°śayana ?)-kṣetra and Subrahmaṇya-kṣetra. Uḍupa-pura is possibly Uḍipi, headquarters of the Uḍipi tāluka in the South Kanara District. The celebrated Vaiṣṇava saint Madhva was born at Kalyāṇapura, not far from Uḍipi. Anantaśaila may also remind one of the Anantapura District and the Anantagiri in the Elgandal Dist., Hyderabad.

8. *Kāśmīra* (v. 9).

Kāśmīra is described as the country lying between the Śāradāmaṭha and the Kuṅkumādri and extending over 50 yojanas. The Kuṅkuma hill cannot be satisfactorily identified; but Śāradāmaṭha is evidently the celebrated Śaiva monastery of Kāśmīra supposed to have been established by the great Śaṅkarācārya.

9. *Kāmarūpa* (v. 10).

The country of Kāmarūpa is said to have extended from Kāleśvara to Śvetagiri and from Tripura to Nīlaparvata. The "Blue Mount" seems to be the Nīlādri or Nīlakūṭa, the name of the Kāmākhyā hill according to the *Kālikā* Purāṇa, ch. 79, v. 74. Gaṇeśagiri seems to be referred to as lying in the heart of Kāmarūpa. Tripura can be quite satisfactorily identified. It is no other than Tripurā or Tipperah in south-east Bengal. The heart of ancient Kāmarūpa was the Gauhāṭi District in Assam. The celebrated temple of Kāmākhyā, called the *yoni-pīṭha,* lies not far from the Gauhāṭi town. According to Yuan Chwang, Kāmarūpa lay to the east of the Karatoyā, while the *Yoginī Tantra* includes in the country the Brahmaputra valley together with Rangpur and Cochbihār.

10. *Mahārāṣṭra* (v. 11).

Mahārāṣṭra (i.e. the Marāṭhī speaking area) extended from Tryambaka to Karṇāṭa, and comprised Ujjayinī, Mārjāratīrtha and Kolāpura-nivāsinī. Tryambaka is certainly the celebrated Tryambakeśvara liṅga near Nāsik and here indicates the whole of the Nasik area. Ujjain and Kolhāpur are also well-known localities. Kolāpura-nivāsinī appears to be the goddess Mahālakṣmī of the great shrine at Kolhāpur. As has already been pointed out, the inclusion of Ujjain appears to point to the Marāṭhā conquest of Malwa during the rule of Peshwā Bājī-Rāo I (1720-40 A.D.); and in that case we have to assume that the *Śaktisaṅgama-Tantra,* or at least the Deśa-Vibhāga

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section of it, was composed not earlier than the 1st half of the 18th century. Karṇāṭa of this verse seems to be different from that of v. 16 and to indicate the original Karṇāṭa or the Kanarese speaking area. The *Kāmasūtra* commentary also locates Mahārāṣṭra between the Narmadā and Karṇāṭa.

11. *Andhra* (v. 12).

Andhra is said to have been the country which has Jagannātha above and Bhramarāmbikā below. Jagannātha is the celebrated god of Purī ; but here the district round the shrine seems to be indicated. Bhramarāmbikā is no doubt the famous Bhramarāmbā who is one of the 18 Śaktis in India and is enshrined at Śrīśaila with the god Mallikārjuna, one of the 12 Jyotirliṅgas.

It will be noticed that the southernmost part of the Andhra or the Telugu speaking area has been called Tailaṅga (v. 14). We have hardly any definite evidence to accept or reject this interesting information.

12. *Saurāṣṭra* or *Gurjara* (v. 13).

From Koṅkaṇa up to Hiṅgulāja in the west lies, according to the verse, the Saurāṣṭra country on the sea coast covering a hundred yojanas. This country has also been called Gurjara. Koṅkaṇa is the strip of land between the Western Ghāṭs and the Arabian sea, and Hiṅgulāja is the famous tīrtha of Hiṅglāj near the Arabian Sea (bet. lat. 25° and 26; long. 65 and 66), more than 100 miles to the west of Karachi.

Surāṣṭra originally indicated the southern part of Kaṭhiāwāḍ; but in the later period the name Gujarāt is found to be used in a wide sense to comprise the whole of Kāṭhiāwāḍ and the adjoining portions in the east. The verse in question gives a wide extent of the country ; it must however be remembered that from a pilgrim's point of view Gujarat may be roughly placed between Koṅkan and the district round Hiṅglāj. Pilgrims seem to have reached Somanātha in Kāṭhiāwāḍ by boat from Northern Koṅkan and then proceeded to Hiṅglāj again by boat (cf. v. 57).

13. *Tailaṅga* (v. 14).

From Śrīśaila up to the middle of the distance between Śrīśaila and Coleśa lies the Tailaṅga country. Coleśa may indicate the god of the celebrated Bṛhadeśvara temple at Tanjore. Tailaṅga is the same as the name Telengana and is related to *Telugu*. But the origin of this geographical term is unknown (see No. 10).

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14. *Malayāla* (v. 15).

The Malayāla country is described as lying between Mūkāmbikā and the Malayādri. Malayādri has been identified with the Travancore hills. The goddess is difficult to locate ; her identification with the famous goddess Mumbā of Bombay is not impossible, though Bombay lies far to the north of the Malayalam or Malabar area. It will however be seen that in many cases, the "bordering country" is actually far off.

15. *Karṇāṭa* (v. 16).

The Karṇāṭa country is said to have extended from Rāmanātha up to Śrīraṅga. Śrīraṅga is no doubt the same as Śrīraṅgam opposite Tanjore on the other side of the Kāverī. Rāmanātha, though it reminds us of Rāmnād further south, is not easy to identify. It may possibly refer to the Rāmanātha Maṭha in the Madurā District. The reference to Śrīraṅgam as a boundary of Karṇāṭa suggests that it is not the ancient Karṇāṭa country the heart of which was in Kanara. Kanara (=*Kannaḍa*) is the same as *Karṇāṭa*. With the expansion of the empire of the Kanarese kings of Vijayanagara, the name Karṇāta extended over a large part of the Deccan. After the battle of Talikoṭa in 1665, the Vijayanagara kings withdrew first to Candragiri (Chittoor Dist.) and then to Vellore (N. Arcot Dist.) But, as has already been indicated, even when their kingdom became confined to a very small area far away from ancient Karṇāṭa, they were known as the Rāyas of Karṇāṭaka. About the end of the 17th century, Zulfiqār Ali Khān (*circa* 1692–1703 A.D.) the progenitor of the Nawābs of Arcot, was created the "Nawāb of the Carnatic (=Karṇāṭaka)." It is not impossible that the verse actually refers to the kingdom of these Nawābs of the Carnatic.

16. *Avanti* (v. 17).

Avanti is described as extending from the Tāmraparṇī as far as the northern side of some hills, and as the place of Kālikā. This Tāmraparṇī is an unknown river and not the celebrated rivulet of that name identified with Chittar in the extreme south of India. The hills referred to may be the western Vindhyas.

Avanti is generally identified with the district round Ujjain which was its capital. Kālikā mentioned in the verse is evidently the Śakti of the celebrated Mahākāla of Ujjain.

17. *Vidarbha* (v. 18).

The country of Vidarbha is said to have been situated to the east of Bhadrakālī and to the west of Rāmadurga (or, with Rāmadurgā

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in the west?). This Bhadrakālī appears to be the same goddess as Kālikā (of Ujjain) mentioned in the preceding verse. Rāmadurga, though it reminds us of the state of this name in the South Marāṭhā country may be modern Rāmtek about 25 miles from Nāgpur.

Vidarbha is modern Berar which is actually to the west of the Nāgpur region. The Ujjain region however lies to the north or north-west of Berar. Even if we accept an old tradition according to which Avanti included the Māhiṣmatī (mod. Māndhātā) region on the Narmadā, it cannot be placed to its west. I have therefore suggested the reading *bhadrakālī-dakṣapūrve,* "to the south-east of Bhadrakālī."

18. *Maru* (v. 19).

The Maru country seems to be described as extending from the east of the Gujarat region up to the territory to the north of Dvārakā and as famous for its camels. It is the great Indian desert called the Thar or Rājputānā desert. The land to the east of Gujarat possibly indicates the Mārwāṛ (=Maru) area.

19. *Ābhīra* (v. 20).

The Ābhīra country appears to be placed on the Vindhyas between the Koṅkaṇa in the south and the Tāpī or Tāptī in the north-west.

The Ābhīras originally lived in the Desert; but they gradually pushed towards the south. In the 1st and 2nd centuries A.D. Aberia or the Ābhīra country lay not far from Surāṣṭra or Southern Kāṭhiāwāṛ. In the 3rd century A.D., the Ābhīras founded a kingdom comprising parts of the Northern Koṅkan and the Nāsik region. This area, and not possibly the mod. Āhīrwāṛā, seems to have been indicated by the verse. Vindhya would in that case mean some northern spurs of the Western Ghāṭs (ancient Sahya). It should be remembered that in the medieval period all mountains running from the Sahya region towards the east were sometimes called Vindhya.

20. *Mālava* (v. 21)

The great country of Mālava is described as lying to the east of Avanti and to the north of the Godāvarī. The verse evidently indicates Eastern Mālwā the ancient name of which was Ākara or Daśārṇa with its capital at Vidiśā (mod. Besnagar near Bhilsa). The *Kāmasūtra* commentary also identifies Mālava with Pūrva-Mālava and gives the name Avanti to the Ujjain region.

21. *Cola* (v. 22).

The Cola country is said to have been situated between Draviḍa and Tailaṅga, and the three countries which were very similar to one

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another were also known as the (land of the) Lambakarṇas.

The Cola country proper was the Tanjore–Trichinopoly region. The verse however appears to refer to the country of the Telugu Colas.

22. *Pāñcāla* (v. 23).

Pāñcāla appears to have been described as lying at 13 or 30 yojanas from Indraprastha with Kurukṣetra both in the west and the north. Indraprastha is the modern Delhi region and Kurukṣetra was the country to the south of the Sarasvatī and to the north of the Dṛṣadvatī, in the Karnāl-Ambala region of the Eastern Panjab.

Ancient Pāñcāla comprised roughly the modern Rohilkhand division of the United Provinces. Ahicchatrā, capital of North Pāñcāla, has been identified with modern Rāmnagar in the Bareily Dist., U.P.

23. *Kāmboja* (v. 24).

The Kāmboja country is described as extending from Pāñcāla and lying to the south-east of the Mleccha country. Mleccha possibly indicates the Mahomedan countries on the north-western borders of India.

The ancient Kāmbojas are supposed to have lived in the Rajaur (=Rājapura of the *Mbh.*) valley and the adjoining regions, that is to say, roughly between the Panjab and Kafiristan. From a pilgrim's standpoint therefore the country may have been described as having Pāñcāla in the south-east and the Mahomedan countries in the north-west. The horses of the Kāmboja country are often found mentioned in literature and inscriptions.

24. *Virāṭa* (v. 25).

The country called Virāṭa or Vairāṭa is placed to the north of Vidarbha, to the south of Indraprastha and to the east of the Marudeśa.

Of course Vidarbha is far to the south ; but the ancient Virāṭa or Matsya country actually lay in the Alwar-Bharatpur-Jaipur region to the south of the Delhi area and to the east of the Desert. Vidarbha was never its southern boundary ; but it may have been mentioned as a country lying in the south—whatever be the distance—of the Virāṭa country. One of the 51 Pīṭhas is said to be in Virāṭa where the Devī is Ambikā and the Bhairava Amṛta. There was a Virāṭa country in northern Bengal, according to a MS. of the *Bhavisya Purāṇa* (see No. 37 below). The Nīvṛti country (comprising Vardhanakūṭa=Bardhankoṭ, Kacchapa=Cochbihār or, more probably, Kachhar, and Rangpur) has there been described as नीवृतिःसा च यत्रैव

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जनिष्यति तृणादिकम्। वरेन्द्रोत्तरभागे च विराटस्य च सन्निधौ। वङ्गस्य पश्चिमोत्तरे नीवृतिर्विषयो मतः॥ This Virāṭa is apparently connected with the "Birāṭ-rājār garh" in the Rangpur Dist., or Bairāṭṭā in the Dīnājpur Dist.

25. *Pāṇḍu* (v. 26).

The Pāṇḍu or Pāṇḍya country is placed to the south of Kāmboja and to the west of Indraprastha or the Delhi region.

It is interesting to note that there is evidence of the existence of an ancient Pāṇḍu country in the Panjab. Ptolemy's Geography (VII, i, 46) places the country of Pandoouoi (=Pāṇḍava) around the Bidaspes = Vitastā = Jhelum and includes in it Sagala = Sākala = Siālkot. Poros (= Puru or Paurava), contemporary of Alexander, evidently belonged to this Pāṇḍu country. The *Vedic Index* suggests that either the Jhelum region was the early home of the Purus where some remained while others migrated to the east, or that region was later conqured by the Purus settled in the east.

26. *Videha* or *Tairabhukti* (v. 27).

The Videha country, also called Tīrabhukta or Tairabhukti, is described as extending from the banks of the Gaṇḍakī as far as the Campāraṇya. Gaṇḍakī-tīra here appears to indicate the southern boundary of the country and the place where mod. Gaṇḍak falls into the Ganges. Campāraṇya, mod. Camparan, seems to be the northern boundary. The name *Tīrabhukti* still survives in the modern form *Tīrhut*. It is the same as upper Bihār to the north of the Ganges.

27. *Bāhlīka* (v. 28).

The Bāhlīka country is said to be bordering on Kāmboja and situated to the east of Mahā-mleccha. Bahlīka was Bactria (mod. Balkh) to the north of Afghānistān ; but Vāhīka was an old name of the Panjab. The reading Bāhlīka is better as the country is placed between Kamboja and the great Mleccha world of the west.

28. *Kirāta* (v. 29).

The Kirāta country is described as extending from Taptakuṇḍa as far as Rāmakṣetra and as lying on the Vindhyas. Taptakuṇḍa may indicate the hot springs at Rājgir or those near Monghyr. Rāmakṣetra may be Rāmagiri or Rāmtek. Kirāta here seems to indicate some Vindhyan hill tribes, though in old literature they are usually connected with the Himalayan region. The fact is that the terms like *Pulinda* and *Kirāta* really indicated particular hill tribes ; but later their meaning expanded so as to signify any hill tribe,

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29. *Vakrānta* (v. 29).

The Vakrānta country is said to have extended from the Karatoyā as far as Hiṅgulāja and abounded with a great number of Mlecchas. The Karatoyā river mentioned here is not easy to identify ; but the reference to the Hiṅglāj area as one of the bordering regions suggests that Vakrāntadeśa is possibly not Wakhan, but very probably Makran between Baluchistan and Persia. Pargiter *(Mārk. Purāṇa,* p. 301) notices three Karatoyās ; the first a tributary of the Brahmaputra in North Bengal, the second belonging to the Himalayan region in North India and the third rising from the Vindhyan range. The second seems to be indicated in the verse ; but this plurality may have been caused by wrong readings.

30. *Khurāśana* (v. 31).

The country called Khurāśana (Khorashan) is described as extending from the Hiṅgu-Pīṭha, i.e. Hiṅgulāj, up to Makkeśa. Makkeśa, "lord of Mecca," is an imaginary Śiva-liṅga at Mecca, the most sacred of the Muslim holy places. According to a popular Bengali tradition, apparently influenced by the Tantras, in an underground room underneath the floor of the Kaaba at Mecca there lies Śiva in deep sleep ; pious Hindus are never allowed to approach him ; if however a devout Hindu can place on his head a *bilva-patra* only once, the god will at once rise up and destroy all the Mahomedans of the world.

Khorashan is the north-eastern province of Persia, to the west of Afghānistan ; but the name here seems to be employed as a general designation of all the Muslim countries of Western Asia.

31. *Airāka* (v.31).

In the northern part of the country of Khurāśana, i.e. Western Asia, is placed Airāka, i.e. Iraq.

32. *Bhoṭānta* (v. 33).

The Bhoṭānta country is said to have extended from Kāśmīra and lay to the west of Kāmarūpa and to the south of Mānaseśa. Bhoṭānta is evidently Bhoṭān and Mānaseśa refers to the god (Śiva) at the Mānasa lake. Modern Bhotān in a small state to the north of Bengal ; but the Tibetan people are also known as Bhauṭṭa or Bhoṭa. Taken in this wider sense Bhoṭānta may actually be placed between Kāśmīra and Kāmarūpa.

33. *Cīna* (v. 34).

Cīnadeśa is described as lying to the south-east of Mānaseśa. The country to the south-east of the Mānasa-sarovara is Tibet which

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appears to be indicated by the name Cīna in the verse. Tibet formed a part of the dominions of the Chinese emperors.

34. *Mahā-Cīna* (v. 35).

The Mahācīna country is said to have extended from the Kailāsa-giri and from the place of origin of the Sarayū as far as Moṅga. Mount Kailāsa is that part of the Himalayan range which lies to the north of the Mānasa-sarovara and the origin of the Sarayū (Ghogra) is not far off. Moṅga and its variants appear to refer to Mongolia to the north of China. Mahācīna therefore refers to China proper.

35. *Nepāla* (v. 35).

The country of Nepāla is placed between Jaṭeśvara and Yoginī which seems to refer to Yoginīpura or Delhi. The Nepāla country to the north of Bihār and U.P. is well-known ; but Jaṭeśvara cannot be satisfactorily identified. It is possible that the actual reading should be Jalpeśvara, the famous Śiva of the Jalpaiguri Dist., often referred to in the later Puranic literature.

36. *Śilahaṭṭa* (v. 36).

The country called Śilahaṭṭa is described as extending from Gaṇeśvara as far as the sea. Gaṇeśvara appears to be identical with Gaṇeśagiri placed in the heart of the country of Kāmarūpa (v. 10). Śilahaṭṭa is no doubt modern Sylhet which however does not extend up to the Bay of Bengal.

37. *Gauḍa* (v. 38).

Gauḍa is said to have extended from the Vaṅga country up to Bhuvaneśa (i.e. Bhuvaneśwar). In modern times Gauḍa implies the whole area inhabited by the Bengali speaking people. Originally however the country possibly comprised only the present Murshidābād District with the exclusion of its southernmost part. The Chinese traveller Yuan Chwang describes Karṇasuvarṇa as the name of both the kingdom and capital of Śaśāṅka who has been called "the lord of Gauḍa" in the *Harṣacarita*. According to the Chinese pilgrim the Raktamṛttikā-vihāra lay in the suburbs of the Karṇasuvarṇa city and the country was about 730 or 750 miles in circuit. As the monastery referred to has been located in mod. Rāṅgāmāṭi (=Skt. Raktamṛttikā), the identification of the Karṇasuvarṇa or Gauḍa country with the Murshidābād District is plausible. This identification is again supported by an interpolated section of the *Bhaviṣya-Purāṇa* (MS. No. 3582 of the R.A.S.B.) which says :—

पुण्ड्रदेशे समुद्देशास्तेषां नामानि वै शृणु । गौड़ावरेन्द्रो नीवितिः सुह्मदेशः प्रकीर्त्तितः ॥

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and पद्मानद्या दक्षभागे वर्द्धमानस्य चोत्तरे। गौड़देशः स विज्ञेयो गौड़ेशी यत्र तिष्ठति॥

that is to say, Gauḍa (comprising Navadvīpa, Śāntipura, Maulapattana and Kaṇṭakapattana) lies between the river Padmā and the Vardhamāna district and forms a part of Puṇḍra, the name here used to indicate Bengal without its south-eastern part, but with some parts of Bihār and Orissa. The southern part of the Malda District comprising the site of the city of Gauḍa seems to have been annexed to the Gauḍa country in the early medieval period (about the time of Śaśāṅka ?) and the capitals of the Pāla and Sena kings in Gauḍa were probably all situated near the modern site Gauṛ. Our work divides Bengal in two broad divisions—East Bengal (Vaṅga) and West Bengal (Gauḍa). It is interesting in this connection to note that Muslim historians sometimes called this country "Gaur-Bangāl." This is one of the numerous instances of the expansion of the connotation of a geographical term.

38. *Mahākośala* (v. 38).

The Mahākośala country is placed to the south of Gokarṇeśa, to the north of Āryāvartta, to the west of Tairabhukti and to the east of (or, on all sides of) Mahāpurī. Gokarṇa is the name of a village on the Bāgmatī in Nepāl. Āryāvartta is not the same as that (=North India) defined by Manu, but the Tantric Āryāvartta defined as विन्ध्योत्तरगतनैव मगधाच्चापरेण तु। हिमाद्रेर्दक्षिणे भागे पाञ्चालात् पूर्वतस्तथा॥ आर्य्यावर्त्त इति ख्यातः, etc. (Bagchi, *Studies in the Tantras*, p. 108). Mahāpurī appears to refer to Delhi which was the capital of the Mughal emperors at the time of the composition of the work to which the verse belongs. Mahākośala is no doubt the same as Kośala ruled by the Sūrya-vaṃśī kings from their capital at Ayodhyā, near modern Fyzābād in Oudh (=Ayodhyā). The name Mahākośala thus appears to be wrongly applied now to indicate South Kośala, i.e. the Raipur-Sambalpur-Bilaspur region. If we prefer the reading सर्वतः to पूर्वतः Mahāpurī would possibly indicate Ayodhyā, the ancient capital of the Kośala *janapada*.

39. *Magadha* (v. 39).

The great country of Magadha is described as extending from Kāleśvara or Vyāseśvara as far as Tapta-kuṇḍa. Kāleśvara is evidently the celebrated Kāla-Bhairava of Benares and Vyāseśvara reminds us of Vyāsa-Kāśī. Taptakuṇḍa seems to refer to the hot springs (e.g., Sītā-

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kuṇḍa) near Monghyr. The Magadha country is therefore placed between the Benares region and the Monghyr District.

40. *Kīkaṭa* (v. 40).

The Kīkaṭa country is placed in the southern part of Magadha, the northern half of which is called Māgadha proper. Kīkaṭa is described as extending from the Caraṇādri up to Gṛdhrakūṭa. The celebrated Gṛdhrakūṭa, Vulture peak (mod. Śailagiri), was near Rājagṛha, mod. Rājgir in the Gayā District. Caraṇādri appears to indicate either the Viṣṇupada hill at Gayā, or Chunār. In the Purāṇic literature, Kīkaṭa is essentially connected with the Gayā region. But the traditional indentification of Kīkaṭa with the Gayā-pradeśa and with Magadha appear to be both right. The verse indicates that originally the Gayā region was called Kīkaṭa and the Pāṭnā region Magadha; but soon the former became a part of the latter.

41. *Utkala* (v. 41).

The country which has Jagannātha (the god at the shrine at Purī on the sea) on the boundary is described as Utkala. Utkala which roughly indicates the modern Purī District is a Pīṭhasthāna.

42. *Śrīkuntala* (v. 43).

The country called Śrīkuntala is placed between Kāmagiri and Dvārakā. V. 44 shows that the Kāmagiri was far to the north of the Desert. In this connection it is interesting to note that an inscription of 1176 A.D. (*I.A.*, X, p. 342) represents a ruler of the Kāma country as a tributary to the king of the Sapādalakṣa Mountain (=the Siwalik range). It is also not impossible that the name Kāma has something to do with that of Kumaon. The Śrīkuntala country thus appears to be placed between the Siwalik-Kumaon region in the north and Dvārakā in the south. Śrīkuntala is however otherwise unknown and the well-known Kuntala lies in the Kanarese area. Is Śrīkuntala a mistake for Śrīkaṇṭhaka of the Thāneśwar region? The wide extent of the Śrīkaṇṭha country can however only be accepted if we refer it to the time of Harṣavardhana (60-47 A.D.), king of Thāneśwar and Kanauj.

Pargiter (*Mārkaṇḍeya Purāṇa*, p. 308) notices three Kuntalas; one in the Deccan, the second near Chunar to the south of Benares and the third "in the west." This third Kuntala may be indicated in the verse. It is however probable that this plurality of Kuntala as suggested by Pargiter is due to wrong reading which might have misled even the author of the verse in question.

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43. *Hūṇa* (v. 44).

The Hūṇadeśa is placed to the south of Kāmagiri (see No. 42) and to the north of the Marudeśa, i.e. the Desert, and is called the land of heroes. The Hūṇas had a place in Indian politics even long after the disintegration of the extensive empire of Toramāna and Mihirakula. The *Harṣacarita* places the Hūṇa country in the Panjab region. Hūṇa royal houses are mentioned in the records of the Pratihāras, Kalacuris and others. The Hūṇas are ultimately known to have become one of the 36 clans of the Rajputs.

44. *Koṅkaṇa* (v. 45).

Koṅkaṇa has been described as lying on the seacoast. It seems to have extended from the Ghaṭṭa as far as the middle of the district round Koṭīśa. Koṅkaṇa as we know is the strip of land between the Western Ghāṭs and the Arabian sea. Ghaṭṭa therefore appears to indicate the Western Ghāṭs, while Koṭīśa reminds us of the famous Koṭeśvara Mahādeva near the sea, not far from Bhuj, the capital of Cutch. It must however be admitted that Koṭeśvara is far away from the Koṅkaṇ.

45. *Kaikaya* (v. 46).

Kaikaya is placed between the Brahmaputra and Kāmarūpa. The ancient Kekaya country lay in the Panjab to the east of Gandhāra (the Peshwar-Rāwalpindi region). But a Kekaya kingdom is known to have existed in the northern part of Mysore in the 5th century A.D. The Kaikaya country mentioned in our verse seems to be a place in North-east Bengal which was possibly connected by local traditions with the ancient Kekayas of the Panjab. Kaikaya may even indicate the land of the "Kukis" in Assam and Maṇipur. It is also possible that *Kaikaya* is a wrong reading.

46. *Śaurasena* (v. 47).

The Śaurasena country seems to be described as extending from Magadha in the south-east up to the territory to the west of the Vindhya. The ancient Śaurasena people lived in the Mathurā region. Greek writers refer to the Sourasenoi and to their cities Methora (Mathurā =mod. Muttra) and Kleisobora (possibly Kṛṣṇapura=Gokula). This old Śūrasena or Śaurasena country therefore had nothing to do with Magadha, the ancient name of south Bihār. It must however be remembered that our author extends Magadha as far as the Benares district in the west. He possibly believed that the Śaurasena country extended from the Benares region up to the Mathurā district which

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is to the west (actually to the northwest) of the Vindhyan range. Vindhya may also be intended for the district round modern Bindhyāchal near Mirzapur. It may also be suggested that the text is corrupt and we should have "with Magadha in the south-east and to the north of the Vindhya." It is interesting to note in this connection that the *Kāmasūtra* commentary locates Śaurasena **कौशाम्ब्या दक्षिणतः** (sic. **पश्चिमतः**) **कूले** [**यमुनायाः**]

47. *Kuru* (v. 48).

The Kurudeśa appears to be described as extending from the Hastināpura region and as lying to the south of the Kurukṣetra, with Pāñcāla in the east. Hastināpur, capital of the Kuru country, has been identified with a locality near Meerut. According to the *Mahābhārata* (III, 83, 240–248) **दक्षिणेन सरस्वत्या दृषद्वत्युत्तरेण च । ये वसन्ति कुरुक्षेत्रे ते वसन्ति त्रिविष्टपे ॥** that is to say, the Kurukṣetra lay between the rivers Sarasvatī and Dṛṣadvatī in the Eastern Panjab. This land has been called Brahmāvartta in the *Manusaṃhitā*. The verse placing the Kuru country practically between the Dṛṣadvatī and Pāñcāla says nothing against the epic tradition.

48. *Siṃhala* (v. 49).

The great country called Siṃhala, the best of all countries, is placed to the east of the Marudeśa and to the south of the Kāmādri. This Siṃhala cannot be identified with Ceylon. It is evidently in the Panjab region and reminds us of the kingdom of Siṃhapura mentioned by Yuan Chwang. The capital of this kingdom has been identified with Khetas or Katas in the Jhelum District, which is next to Jwālāmukhī the most-frequented place of pilgrimage in the Panjab.

39. *Pulinda* (v. 50).

The country of Pulinda is placed to the east of Śilahaṭṭa and possibly to the south of Kāmarūpa. The text reads "to the north of Kāmarūpa"; but no locality to the north of Kāmarūpa, the heart of which was the Gauhāti region, can have anything to do with Śilahaṭṭa, i.e. modern Sylhet. The Pulindas were a hill tribe, usually connected with the Vindhyan range. Pargiter (*Mārk. Purāṇa*, pp. 316, 335, 338) notices several branches of the Pulinda tribe, (1) a western branch, (2) a Himalayan branch related to the Kirātas and the Taṅganas, and (3) a southern branch. The second branch may be intended here; though their plurality however may be due either to misreadings in the MSS. he followed or to the fact that the term was sometimes used

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to indicate any hill tribe. Pulinda of the verse may possibly refer to the tribes of the hills of Assam, but more probably to the land of the "Paliyās" or Rājbaṃśīs of North Bengal.

50. *Kaccha* (v. 51).

The Kacchadeśa is placed to the east of Gaṇeśvara and to the north of the sea, and is possibly also called Sevana. If Gaṇeśvara is the same as Gaṇeśagiri in the heart of Kāmarūpa, Kaccha may be identified with Kacchapa (possibly Kachhar or Cochbihār) placed by the *Bhaviṣya Purāṇa* in the north-eastern region of Vaṅga (see No. 24). But the expression "to the north of the sea" seems to indicate Cutch. The identification of Kaccha and Sevana, possibly suggested in the verse, offers another difficulty. Sevana, i.e. Seunadeśa, was the name of the kingdom of the Yādavas who had their capitals first at Sinnar near Nasik and then at Devagiri, mod. Daulatābād in the Aurangabad Dist., Hyderabad. The Seuna country was therefore the Nāsik —Daulatabad region ; but the name may have been also used for the vast kingdom conquered by the powerful kings of the Yādava dynasty. In that case, Kaccha may possibly indicate the district round Bhṛgukaccha, mod. Broach near the mouth of the Narmadā. The meaning of the word *kaccha* however seems to be "a region on the seacoast," and it is possible that all the Kacchas (including Cutch and Kacchapa) referred to above have been confused in the verse.

51. *Matsya* (v. 52).

The Matsyadeśa is placed to the north of Pulinda and to the east of Kaccha. This country is described as abounding in fish. If Pulinda of this verse is the same as that in verse 50, and Kaccha is the same as Kacchapa (Kachhar or Cochbihār), this Matsyadeśa may be identified with Virāṭa placed to the north-east of Bengal in a verse of the *Bhaviṣya-Purāṇa* (see No. 24). Virāṭa was the celebrated epic king of the Matsya country which has been located in the Alwar-Jaipur-Bharatpur region. The capital Virāṭanagara has been identified with modern Bairāt in the Jaypur State. If this ancient Matsya country can be taken in a wider sense, it is also not impossible to suggest that this is the country intended by the verse. In that case however we have to locate the Pulindas of this verse in the western Vindhyas, and to believe that Virāṭa and Matsya have been differentiated. The author however seems to have made a confusion between the actual Matsya country and a locality in Bengal.

52. *Madra* (v. 53).

The Madra country is located south-eastwise between Vairāṭa

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and Pāṇḍya. Vairāṭa is evidently the same as Virāṭa (No. 24) and Pāṇḍya the same as Pāṇḍu (No. 25). The ancient Madra people lived about the modern Siālkoṭ District of the Panjab. Their capital Śākala has been identified with Siālkoṭ. Madra however has been used here is a wider sense, as Matsya lay far to the south of the ancient Madra country.

53. *Sauvīra* (v. 54).

The Sauvīra country seems to be placed to the west of Śaurasena and to the east of Kaṇthaka and is called the worst of all countries. The ancient Sauvīra was situated on the eastern side of the Indus and included Multan in the north. Śaurasena, i.e. the Mathurā region was far to the east. Kaṇthaka cannot be satisfactorily identified ; but it reminds us of the Kathaioi tribe located by the classical authors between the Jhelum and the Chinab.

54. *Lāṭa* (v. 55).

The Lāṭa country seems to be placed to the west of Avanti and to the south-west of Vaidarbha (Berar). The ancient Lāṭa country was the district between the Lower Mahī and the Tāptī ; but sometimes it also extended beyond Mahī. Bhṛgukaccha (Broach) and Navasārikā (Nausāri) belonged to this country. The *Kāmasūtra* commentary also locates Lāṭa to the west of Apara-Mālava, i.e. Western Mālwā.

55. *Barbara* (v. 56).

The great country called Barbara is described as extending from Māyāpura and lay to the north of the Saptaśṛṅga. Barbara reminds us of Barbaricum of the *Periplus* which lay on the sea at the mouth of the Indus and belonged to the country of Scythia (Indo-scythia of Ptolemy), i.e. the Śaka country. It is tempting to identify Māyāpura with the place of that name near Hardwār or less probably with Māyāvaram (Tanjore District) on the S. I. Railway. Saptaśṛṅga is again a famous place to the north of Nasik. The image of the 18-armed goddess of this place is 12 feet high *(Ind. Cult.*, VII, p. 450). A verse of the Supplement also metions both Māyāpura and the Saptaśṛṅga ; but it is difficult to determine their position with reference to the country of Barbara.

56. *Saindhava* (v. 57).

The *Mahādeśa* called Saindhava, i.e. Sindhu, is described as extending from Laṅkā-pradeśa as far as Makkā. Makkā seems to indicate here the Muslim land of western Asia. But Laṅkā is not easy

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to identify. The country called Siṃhala = Siṃhapura of the Panjab and the Laṅkās or the alluvial lands on the banks the Godāvarī may be suggested. It is however possible in consideration of the travellers' point of view to identify it with Ceylon. They might have reached Sind from Ceylon which was on the way to Mecca. The ancient Sindhudeśa lay to the west of the Indus and was not exactly the same as modern Sindh.

SUPPLEMENT

The Five Prasthas (v. 2).

The *Prasthas* or Tantrik territorial divisions of "India" are enumerated as five, viz. (1) Indraprastha, (2) Yamaprastha, (3) Varuṇaprastha, (4) Kūrmaprastha, and (5) Devaprastha. The word *prastha* means "a level expanse," "level plain," "table-land on the top of a mountain," "the top of a mountain," etc. The word also indicates "going on a journey" and hence possibly, "pilgrimage." This fivefold division of India was therefore made from a Tantric pilgrim's point of view.

1. *Indraprastha* (vv. 3–6).

Indraprastha, the name used in ancient literature to indicate a city in the suburbs of Delhi (see v. 4), appears to have been connected with Yoginīpura which is another name of Delhi. In the eastern district of this Indraprastha lay Mathurā and Gokula, the famous pilgrim-spots of North India. Vṛndāvana, which is near Muttra, is placed at the *koladeśa*, i.e. side, of the Indraprastha. Dvārakā is placed to the west and Gadāvarta to the south. Dvārakā is the famous *tīrtha* in Kāṭhiāwāḍ. Gadāvarta, quite well-known from the Harivaṃśa as the place where the *Gadā* or club thrown by Jarāsandha on Kṛṣṇa at Mathurā fell, is also to be placed not very far from Mathurā. The Indraprastha is therefore bounded by Delhi in the north, Gadāvarta in the south, Mathurā in the east, and Dvārakā in the west. Roughly speaking it included the Meerut region in the north-east and parts of Kāṭhiāwāḍ in the south-east with its centre at the city of Indraprastha (Delhi).

2. *Yamaprastha* (vv. 7–9).

The Yamaprastha seems to be placed in the south (i.e., to the south of the Indraprastha) with Someśvara in the west, Saptaśṛṅga in the east, Māyāpura in the north and Vyaṅkaṭeśa in the south. Someśvara and Vyaṅkaṭeśa are evidently the gods at the celebrated temples at Somnāth in Kāṭhiāwāḍ and at Tirupati in the Chittoor

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District of the Madras Presidency. Māyāpura and Saptaśṛṇga may or may not be the celebrated places respectively near Hardwār and Nasik. There is reference to another locality called Śaṅkhāvarta which is possibly also called the Māyā land. Roughly speaking, the Yamaprastha or the southern *prastha* comprised parts of Kāṭhiāwāḍ in the north-west and the district round Tirupati in the south.

3. *Varuṇaprastha* (vv. 10–13).

The Varuṇaprastha or Vāruṇaprastha is said to have Jagannātha in the east, Makkeśvara in the west, Hiṅgulā in the north and Trailokyavijayā in the south. The seven *sāgaras* and *samudras* (seas and oceans ?) are placed beyond or near this *prastha*. Trailokyavijayā appears to indicate some deity or pilgrim-spot in Ceylon. There is reference also to a place called Rājāvarta. The Varuṇaprastha was evidently connected with the sea and comprised most of the districts on the coast of the Arabian sea and the Bay of Bengal.

4. *Kūrmaprastha* (vv. 14–16).

The Kūrmaprastha is placed to the north of Gokarṇeśa, to the west of Kāmākhyā, to the south of Mānaseśa and to the east of Śāradā. Gokarṇa in Nepāl, Kāmākhyā in Assam, the Mānasa-sarovara in the northern Himalayas and the Śāradā-maṭha in Kāśmīra are all well-known and have already been referred to. This is the Himalayan *prastha* and comprised the northernmost districts of India. This Gokarṇa is not to be identified with the town of this name with famous Śiva temple in the North Kanara Dist.

5. *Devaprastha* (vv. 17–19).

The Devaprastha seems to be placed to the west of Vairajanātha (or Candranātha ?), and to the north of the Amarakaṇṭaka, and Kāñcīpura and Mohanāvarta are located in this *prastha* which had possibly something to do also with Kāmākhyā. Vairajanātha may be connected with the Virajākṣetra near Purī ; but Candranātha, the celebrated god in the Chittagong District of Bengal seems to be actually indicated. Kāñcīpura of the verse does not appear to mean the famous Conjeeveram of the south. It is better to identify it with the *Kāñcī-pīṭha* on the Kopāï river near Bolpur in the Bīrbhūm District, Bengal. The Devaprastha therefore comprised North India to the east of Delhi and to the south of Nepal. Bengal and Assam which had the greatest centres of medieval Tantricism were included in this *prastha,* which is possibly called *Devaprastha* significantly.

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MOTHER-GODDESS CONCEPTION IN THE VEDIC LITERATURE

By NANI MADHAB CHAUDHURI

There has been an unconscious attempt on the part of Vedic scholars to minimise the importance of female deities in the Ṛgveda.

In the Ṛgveda entire hymns addressed to Indra, Agni and Soma fill more than half the space, the first having about 250, the second having about 200 and the last having about 100 hymns.[1] By the side of these three gods all other Ṛgvedic gods, judged by the statistical standard, pale into insignificance. Sūrya and Savitṛ have not more than 11 hymns each, Rudra and Viṣṇu have only 3 to 4 each.[2] But the statistical standard does not supply the true criterion for judging the real greatness of a god in the Ṛgveda, though it may be used as a criterion for judging his importance in the Vedic ritual. Thus "Varuṇa is invoked in fewer hymns than Indra, Agni or Soma, but undoubtedly he is the greatest of the Vedic gods by the side of Indra."[3] In the Ṛgveda, gods of ritual importance have naturally more hymns than others ; and often the same deities have also more direct connection with the conditions of the life of the Vedic Aryans. This is clearly proved by the popularity of the cult of Indra, the champion god of the Ārya tribes against their powerful Dāsa or Dasyu enemies. It is to be expected that in a ritualistic religion dominated by Indra, Agni and Soma little space would be allowed to female deities. Thus Aditi has no separate hymn addressed to her ; one entire hymn only is given to Pṛthivī and Rātri each ; Sarasvatī has three entire hymns, personified waters have four, Sindhu has one ; among personified abstactions conceived of as female Śraddhā and Dakṣiṇā have one hymn each ; personified forest and plants conceived of as female have one hymn each ; Uṣas towers above them with 20 separate hymns addressed to her.[4] This paucity of entire hymns addressed to female deities has probably led Vedic scholars to ignore the importance of female deities in the Ṛgveda and pre-occupation with the ritualistic phase of the Ṛgvedic religion and deities do-

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1. Macdonell, *Sanskrit Literature,* p. 74.
2. *Ibid.* pp. 78, 89.
3. *Ibid.* p. 75.
4. *Ibid.* pp. 102, 103, 93, 92, 81.

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minant in this phase has diverted attention from some other phases of the religion of the Ṛgveda.

If we leave aside the question of number of hymns addressed to female deities and consider their position comparing it with that of male deities from the statistical standard of number the case for female deities would appear to be brighter. The number of male deities is given as thirtythree in the Ṛgveda.[5] But, as Macdonell points out, "there are, however, hardly twenty individual deities important enough to have at least 3 entire hymns addressed to them."[6] The number of female deities and beneficent and evil spirits of all classes having separate hymns or parts of hymns or incidentally mentioned in the Ṛgveda is much more than thirtythree. Without attempting any classification their names are given below: Uṣas, Rātri, Sinīvālī, Rākā, Guṅgū; Pṛthivī, Aditi, Pṛśni, Diti, Svasti, Pathyā-Revatī, Purandhi, Anumati, Apdevīs, Sarasvatī, Sindhu, Rivers, Araṇyānī, Oṣadhi, Indrāṇī, Varuṇānī, Rudrāṇī, Āgneyī, Saraṇyu, Sūryā, Śacī, Rodasī, Mīḷhuṣī, Śavasī, Sītā, Urvarā; Dvāradevīs, Araṇi, Dakṣiṇā, Śraddhā, Dhiṣaṇā, Ḷā, Hotrā, Mahī, Bhāratī, Gaurī, Sasarparī, Svāhā, Urvaśī, (Vasatīvarī), Apvā, Alakṣmī, Kṛtyā, Nirṛti, Apsarasas etc. This large number of female deities and spirits, though many of them are mere names, may be taken as an evidence which disproves the theory of the indifference of the Ṛgvedic poets to female deities. Again, the conception of Aditi, who has not even an entire hymn addressed to her, shows that the Supreme Being conceived of as a female rises to a height which not even the mightiest of the Vedic gods reach.

The present investigation into mother-goddess conception in the Vedic literature has been undertaken firstly, because we think that this neglect has resulted in certain important features in the development of post-Vedic religion escaping attention; secondly, because a study of the attributes of the more important mother-goddesses and their relations with one another and with male deities suggest that different types of mother-goddesses were known to the Vedic Aryans and probably there were clashes between old and new mother cults, a circumstance which raises problems regarding cultural relations of the Vedic Aryans which ought to be studied in the light of new facts that have come to be known; and thirdly, because the Ṛgvedic religion shows a high development of the conception of the All-mother in the abstract which pre-supposes earlier stages of the development of the mother-goddess conception in the concrete. These questions have not yet been fully dealt with.

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5. Rv. 1. 34. 11.

6. Macdonell, *op. cit.*, p. 74.

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A point of considerable importance in a study of mother-goddess conception is to remember that mother-goddess worship is not merely an external fact indicating simply that a number of female deities are worshipped ; it is an outward expression of a mental attitude which encourages the conception of divinity as female. The divinity conceived of as female is an abstract conception only in the final stage of the development of religious imagination illustrated by the conception of the All-mother ; below this stage, divinity is embodied by female personal deities, natural phenomena and objects that are worshipped, abstract qualities and faculties, articles manufactured by human hands, spirits good and evil etc. The fact that besides personal female deities who are worshipped there are deified natural phenomena and objects, implements, abstract qualities and faculties and evil and beneficent spirits that are conceived of as female should be given due weight in an examination of the religion of the Ṛgveda, and the monopolisation of most of the hymns by male deities should not blind one to the significance of it. All this, taken together, gives a correct idea regarding the depth and extent of mother-goddess feeling in the Ṛgveda.

It is proposed here firstly to analyse representations of deities and personified objects etc. as female in the Ṛgveda ; then to deal with female deities invoked as "mothers", and finally to draw attention to the high development of the abstract conception of the All-mother. Next, the Vedic attitude to female deities is analysed and attention is drawn to certain facts brought out by this analysis. Next, we pass on to an intensive examination of the attributes of a number of important mother-goddesses which shows important results. Attention is next turned to female deities in the later Vedic literature and a statement of results obtained so far follows. The enquiry next turns to the probable sources of different types of mother-goddesses found in the Ṛgveda.

Female deities in the Ṛgveda and natural objects, phenomena, abstract qualities, spirits of evil etc. personified and represented as female may be grouped in different orders. To follow the usual order :—

1) Certain natural phenomena are personified as female.
2) Certain deified natural objects are represented as female.
3) Certain abstract qualities are personified as female.
4) Certain deified objects connected with sacrifice and ritual are represented as female.
5) Certain gods have their female counter-parts.
6) Certain spirits of evil are represented as female.

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Among deified natural phenomena and objects personified as female we can distinguish the following groups :

Aditi group : Aditi, Pṛthivī, Pṛśni.
Uṣas group : Uṣas, Rātri, Urvaśī.
Sinīvālī group : Sinīvālī, Rākā, Guṅgū.
Sarasvatī group : Sarasvatī, Apdevīs, Rivers, Sindhu.
Sītā group : Sītā, Oṣadhi, Araṇyānī, Urvarā.

Abstract qualities, faculties etc. and objects connected with sacrifice deified and represented as female may be divided into the following groups :

Sarasvatī or Vāk group : Sarasvatī or Vāk, Gaurī, Sasarparī, Iḷā (as speech), Bhāratī.
Anumati group : Anumati, Pathyā-Revatī, Svasti, Purandhi, Dhiṣaṇā.
Iḷā (as altar) group : Iḷā, Mahī, Bhāratī, Araṇi, Juhū, Hotrā, Dakṣiṇā, Śraddhā, Dvāradevīs.

The female counterparts of the gods include the following : Indrāṇī, Varuṇānī, wife of Rudra, Āgneyī, Sūryā, Saraṇyu, Rodasī, Mīḷhuṣī, Śacī ; wife of Vasukara, son of Indra, is referred to but not mentioned by name ; goddesses who are not referred to as female counterparts of any god are Śavasī, (Vasatīvarī), Indramātās, personified quarters of the globe etc. Evil spirits may be classed together as belonging to the group of Nirṛti including Nirṛti, Apvā, Kṛtyā, Alakṣmī, Yātudhānīs etc.

Aditi group : Aditi, Pṛthivī and Pṛśni ars closely connected. Aditi the great sky-goddess is identified with Pṛthivī and the cow. As earth she bears the burden of the universe.[7] Identified with the earth she is fecundated by Soma.[8] She is also identified with the cow : "Mother of the Rudras, daughter of the Vasus, sister of the Ādityas, source of amṛta," she is the immaculate cow whom people should not injure.[9] Pṛthivī the great mother[10] is identified with Pṛśni[11] and also with the cow.[12] Pṛśni is the mother of the Maruts and wife of Ugra,[13] identified with the cow,[14] with the earth by

7. Rv. I. 72. 9.
8. Rv. IX. 74. 5.
9. Rv. VIII. 101. 15.
10. Rv. I. 159. 3.
11. Rv. I. 160. 3.
12. Rv. I. 164. 8; VIII. 94. 1.
13. Rv. I. 23. 10.
14. Rv. I. 37. 5.

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Sāyaṇa, with the sky in the Nighaṇṭu and with clouds by Roth.[15] From her shining udders Rudra generated the Maruts.[16] It should be noted that all the three goddesses are identified with the cow. Uṣas group : Uṣas holds the most prominent place among goddesses of the Ṛgveda having about twenty entire hymns addressed to her and being invoked incidentally in numerous other hymns. References to her youth, beauty, prowess and the high position she holds in the Ṛgvedic pantheon occur again and again. Rātri is the sister of Uṣas and like her the daughter of the sky.[17] She is invoked for protection from wild beasts and thieves.[18] She is a goddess.[19] Uṣas and Rātri are like mothers of yajña.[20] Day and Night are personified as young women.[21] Urvaśī is the mother of Vasiṣṭha.[22] Urvaśīs are identified with Uṣas.[23] Urvaśī and Iḷā are called mother of cows.[24] References to the relations of Uṣas with different male deities and to her manifold attributes will be given later. It may be noted here that like Pṛthivī, Aditi and Pṛśni, Uṣas too is identified with the cow.[25] Sinīvālī group : Sinīvālī, Rākā, Guṅgū, Indrāṇī and Varuṇāṇī are invoked together in Rv. II. 32. 8. Sinīvālī and Rākā are interpreted as phases of the moon.[26] Both of them are connected with parturition.[27] Sinīvālī presides over birth and is called the nurse of men.[28] Sinīvālī and Sarasvatī are prayed to preserve the embryo.[29] Sarasvatī group : Apdevīs are water-goddesses who are either produced in the sky or found by digging or are self-produced and have Varuṇa for their lord.[30] Waters are goddesses[31]; like young women they surround Apāṁ Napāt who impregnates them and who is also their son.[32] They are mothers,[33] they cure diseases and remove sin.[34] Rivers are youthful goddesses[35]; they are addressed as as sisters[36], compared with cows,[37] and called wives of Indra.[38] Of individual rivers, Sarasvatī

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15. R. C. Dutt's Translation of the Ṛgveda, p. 48, Note 5.
16. Rv. II. 34. 2.
17. Rv. X. 127. 8.
18. Rv. X. 127.
19. Rv. V. 61. 17.
20. Rv. V. 5. 6.
21. Rv. VII. 2. 6, 7,
22. Rv. III. 58. 1.
23. Rv. V. 41. 10.
24. Rv. VII. 33. 9-13.
25. Rv. V. 1. 1 ; III. 58. 1.
26. R. C. Dutt's Translation of the Ṛgveda, p. 467, Notes1—4.
27. Rv. III. 32. 4, 6.
28. Rv. III. 32. 7.
29. Rv. X. 184. 2.
30. Rv. VII. 47. 1 ; 49. 3.
31. Rv. I. 23. 18.
32. Rv. II. 35. 4 f.
33. Rv. IV. 7. 6.
34. Rv. I. 23. 20 f.
35. Rv. VI. 67. 7. IV. 19. 7.
36. Rv. IV. 22. 7.
37. Rv. IX. 66, 6,
38. Rv. V. 42. 12,

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and Sindhu are the most famous. Sindhu is like a beautiful, young goddess; "Rich in horses, in chariots, in garments, in gold, in booty, in wool, in straw, the Sindhu, handsome and young, clothes herself in sweet flowers."[39] Sarasvatī who receives the warmest homage among rivers is conceived of as a white-complexioned, young goddess, mighty in battle, rich in blessings, wealth and food, who is feared so much that even the mighty gods approach her on bent knees. Detailed references to the attributes of Sarasvatī will be given later. Sītā group: Sītā who is the furrow personified is invoked to grant wealth and good crops. Pūṣan is prayed to guide her.[40] Urvarā is personified fertility having Indra for her lord.[41] The forest is personified as a female.[42] Plants are personified as female. They are addressed as mother; they cure disease and remove sin[43]; they are called sisters and compared with the cow.[44]

Female deities who are personified abstract qualities, faculties etc. and objects connected with sacrifice roughly form three groups, e.g. the Sarasvatī or Vāk group, Anumati group and Iḷā group. Sarasvatī or Vāk group: As a sacrificial deity Sarasvatī is sometimes invoked along with Bhāratī, Iḷā and Mahī. Sāyaṇa explains all three as different forms of speech.[45] Iḷā is referred to as the religious instructress of Manu.[46] Sarasvatī is the creatrix of truthful speech, intructress of men and inspirer of all knowledge.[47] She is invoked as Sūnṛtā Devī.[48] She goes in the same chariot with the Fathers.[49] Sasarparī is explained by Sāyaṇa as speech.[50] Gaurī is identified with Vāk or speech.[51] The radiant goddess of speech was created by the gods. She is identified with the cow.[52] The goddess Vāk is spoken of as granting cows.[53] Anumati group: Anumati is a featureless goddess in the Ṛgveda and the description of Roth of her as a goddess of good will and procreation[54] applies to her as she appears in the Atharva Veda. Anumati and Asunīti appear in the same hymn in the Ṛgveda and in one verse they are invoked together (Rv. X. 59. 6). The former is prayed to for protection and the latter for long life and

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39. Rv. X. 75. 8.
40. Rv. IV. 57. 6, 7.
41. Rv. VIII. 21. 3.
42. Rv. X. 146.
43. Rv. X. 97. 2, 3. 4, 5, 16.
44. Rv. III. 57. 3.
45. Commentary on Rv. I. 142. 9.
46. Rv. VII. 31. 11.
47. Rv. I. 3. 11, 12.
48. Rv. I. 40. 3.
49. Rv. X. 17. 8, 9.
50. Sāyaṇa on Rv. III. 53. 15.
51. Rv. I. 164. 41.
52. Rv. VIII. 100. 11; 101. 16.
53. Rv. VII. 38. 5.
54. Quoted in Muir's Sanskrit Texts, vol. v. (1884), p. 398.

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restoration of the dead to life.[55] Two other featureless goddesses of the same group are Pathyā Revatī and Svasti. Pathyā Revatī is explained by Sāyaṇa as the goddess of heavenly path and riches.[56] Svasti Devī is invoked along with Sindhu and Aditi for being friendly.[57] Purandhi appears more frequently but her function does not seem quite clear except in one place where she is connected with the bringing of the Soma. She is prayed to grant peace and spoken of as the upholder of the universe.[58] Dhiṣaṇā is invoked once along with the group of sacrificial female deities and again with Tvaṣṭṛ. She is spoken of as being great and asked to grant wealth.[59] Iḷā group : Iḷā, Sarasvatī, Mahī, Bhāratī and Hotrā form the group of the more important sacrificial female deities. They are often invoked together.[60] Agni is prayed to bring Hotrā, Bhāratī and the great Dhiṣaṇā to the sacrifice.[61] Iḷā, Mahī and Sarasvatī are prayed to take their seats on the sacred grass.[62] Iḷā is identified with the sacrificial altar, speech, cow and earth. The altar is a young woman.[63] Iḷā is butter-handed[64]; she is Dakṣa's daughter and holds Agni.[65] Dakṣiṇā is personified sacrificial fee and invoked as a goddess.[66] Juhū, sacrificial instrument, is a young goddess. Araṇi, the sacrificial firewood, is conceived of as a female and called mother.[68] The doors are goddesses ; they are prayed to open wide to let out the gods.[69] Śraddhā too is a goddess ; through her fire is kindled.[70]

The wives and mothers of the gods include a large number of female deities, most of whom are extremely shadowy figures. The wives of the gods are sometimes mentioned collectively simply as *devānām patnīḥ,* sometimes they are mentioned by name.[71] They actively take part in sacrifice and Agni is prayed to bring them to sacrifice.[72] They are fast-going, protectresses of mankind, generous in granting prayers and they remove troubles.[73] They preside over the seasons of

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55. Rv. X. 59. 5, 6.
56. Commentary on Rv. V. 51. 14
57. Rv. IV. 55. 3.
58. Rv. V. 42. 5 ; VII. 35. 2 ; VIII. 34. 6.
59. Rv. I. 22. 10 ; V. 41. 8.
60. Rv. III. 62. 10; V. 5. 8; VII. 2. 8; I. 22. 10; I. 13. 9; X. 22. 10.
61. Rv. I. 22. 10.
62. Rv. I. 13. 9. X. 20. 8.
63. Rv. X. 114. 3.
64. Rv. VRR. 16. 8.
65. Rv. III. 27. 10.
66. Rv. IV. 18. 5.
67. Rv. VII. 1. 6.
68. Rv. I. 23. 3.
69. Rv. X. 110 ; 70. 5.
70. Rv. X. 151. 1.
71. Rv. V. 46. 8. I. 22. 14.
72. Rv. I. 22. 9.
73. Rv. VII. 34. 20 ; 22.

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the year ;[74] they are givers of treasure.[75] Indrāṇī, Varuṇānī and Āgneyī are invoked by name to come to drink Soma.[76] Varuṇa, Mitra and Aryaman are invited to come to the sacrifice with their wives.[77] The Aśvins are said to be the husbands of Śacī.[78] Sūryā is also the wife of the Aśvins.[79] Rudra has his female counterpart, but she is not mentioned by name in the Ṛgveda. In one place Rudra's wife is spoken of as receiving laudation in sacrifice along with Yama, Aditi, Tvaṣṭṛ etc.[80] The mighty Gnā Devī is the consort of Tvaṣṭṛ.[81] The wife of Vasukra is referred to but not mentioned by name.[82] Saraṇyu, daughter of Tvaṣṭṛ, is the wife of Vivasvat.[83] Venā is the wife of Soma.[84] Dyāvā-Pṛthivī are the beloved of Pūṣan.[85] Pṛśni, from whose shining udders Rudra generated the Maruts, is regarded as the consort of Rudra.[86] Mīḷhuṣī is spoken of as being worshipped along with the Maruts. Sāyaṇa explains that she is the wife of Rudra and mother of the Maruts.[87] Rodasī, who is several times mentioned, is identified by Sāyaṇa with Mīḷhuṣī and explained as Rudra's consort.[88] She is described as carrying sweet drinking water in the chariot of the Maruts stocked with food. She is also described as the wife of the Maruts, young, proud and prolific.[89] Sarasvatī is spoken of as the wife of a hero.[90] Juhū, a youthful goddess, is the wife of Bṛhaspati.[91] Personified rivers are spoken of as Indra's wives and again as Varuṇa's wives.[92] Sūrya is both the husband and son of Uṣas, and also her father.[93] The relations of Uṣas with Agni are similar ; she is the mother, daughter and mistress of Agni.[94] Svāhā is said to perform sacrifice for her husband.[95]

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74. Rv. V. 46. 8.
75. Rv. IV. 34. 7.
76. Rv. I. 22. 14.
77. Rv. VIII. 28. 5.
78. Rv. VII. 67. 5.
79. Rv. X. 85.
80. Rv. X. 92. 11.
81. Rv. V. 43. 6 ; X. 66. 3 ; 92. 11.
82. (Vasukrapatnī is author of X. 28. 1. See Aufrecht, *Die Hymnen des Ṛigveda,* zweite Auflage, zweiter Theil, p. 498. Ed.).
83. Rv. VII. 75. 5 ; I. 113. 2.
84. Rv. I. 34. 2.
85. Rv. X. 17. 6.
86. Rv. II. 34. 2.
87. Commentary on Rv. V. 56. 9.
88. Commentary on Rv. V. 56. 8.
89. Rv. I. 167. 5-7.
90. Rv. VI. 49. 7.
91. Rv. X. 109. 1.
92. Rv. V. 42. 12. ; X. 124. 8.
93. Rv. VII. 75. 5; I. 113. 2; I. 116. 17.
94. Rv. II. 38. 5.; I. 71. 5.; VII. 10. 5.
95. Rv. VIII. 63. 5.

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The Nirṛti group consists of evil spirits and disease spirits who are female. Nirṛti is evil-minded.[96] The sacred stones on which Soma is crushed are prayed to bar her.[97] Varuṇa defeats her.[98] Pigeons are birds of evil omen because they are messengers of Nirṛti.[99] There is also a beneficent aspect in her conception. She is prayed to remove the infirmities of age.[100] She is prayed to go away from the dead man.[101] Kṛtyā attacks the young wife.[102] Apvā is implored to enter the bodies of enemies and cause anguish to their hearts through grief.[103] The Alakṣmīs are vindictive, ugly and given to making hideous noise. They destroy embryos and are opposed to charity.[104] The Yātudhānīs and Rākṣasīs are female counterparts of Yātudhānas and Rākṣasas, maleficent sorcerers and demoniacal spirits. Spirits who are not malignant are Apsarasas and Gandharvas. The former are heavenly females who prepare soma juice.[105] Urvaśī is called an Asparas. The story of Purūravas and Urvaśī is told in detail in Rv. X. 95. Urvaśī appears again as an Apsaras in Rv. VII. 33. The Apsarasas are beautiful sky spirits who are "personifications of the vapours which are attracted by the sun and form into mists or clouds."[106] Whatever be the origin of their conception they appear in the Ṛgveda as beautiful female spirits. The Gandharvas are several times mentioned; the Gandharvī appears once as uttering lauds along with Apyā Yoṣaṇā.[107] Both these classes of spirits become more important in the later Vedic literature.

There are several other female deities and objects or spirits conceived of as female who do not come under the groups mentioned above. Apyā Yoṣā is identified with Uṣas and is spoken of as the mother of Yama and Yamī.[108] Saramā was deputed by the gods to negotiate with the Paṇis.[109] Yamī appears in the famous conversation between Yama and Yamī.[110] Diti is mentioned thrice in the Ṛgveda. She is invoked along with Agni and Aditi for granting riches.[111] Mitra and Varuṇa look upon Diti and Aditi from their golden chariot in the morning.[112] Diti is mentioned along with other deities but

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96. Rv. X. 36. 2, 4.
97. Rv. X. 10. 4.
98. Rv. I. 24. 9.
99. Rv. X. 165. 1.
100. Rv. V. 41. 17.
101. Rv. X. 59.
102. Rv. X. 85. 28, 29, 30.
103. X. 103. 12.
104. Rv. X. 155.
105. Rv. IX. 78. 3.
106. Goldstücker quoted in Muir's Sanskrit Texts vol. V. p. 345.
107. Rv. X. 11. 2.
108. Rv. X. 10. 4, 11. 2.
109. Rv. IV. 16. 8.
110. Rv. X. 10.
111. Rv. IV. 2. 11.
112. Rv. V. 62. 8.

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without Aditi as granting wealth.[113] Śavasī is spoken of as the mother of Indra.[114] Iḷā and Ghṛtapadī appear together.[115] The quarters of the globe are personified as young women.[116] Vasatīvarī is spoken of as being like mother to Soma.[117]

It is necessary in this place to mention specially the cases of Dyāvā-Pṛthivī and Dhenu or the cow. Dyāvā-Pṛthivī are addressed as father and mother,[118] but more often the pair appear as female. Dyaus appearing alone is spoken of as a female and identified with the cow.[119] Dyāvā-Pṛthivī are called two goddesses[120]; sisters[121]; mother and daughter[122]; they are mothers of the world[123], creatrices of everything,[124] mother of Bṛhaspati and of Soma[125] and beloved of Pūṣan.[126] The cow, as we have seen, is identified with Pṛśni, Pṛthivī, Aditi, Uṣas, Vāk etc. The cow is also identified with rains,[127] lauds,[128] rivers[129] and sacrifice[130] and lastly with the universe.[131]

From the above it will be seen that the number of female deities, personified natural phenomena, objects, functions, qualities etc. represented as female is quite large in the Ṛgveda. It is proposed now to single out from the above groups goddesses who are invoked as mothers. A certain classification which may not be deliberate and which it is not proposed to observe strictly in the present treatment, may be noticed in the Ṛgveda among goddesses who are thus invoked as mothers. Thus there are goddesses who are addressed as mothers because of their beneficent or useful nature or because of their productive power or any other feminine trait; there are goddesses who are mothers of individual gods or a number of gods; there are goddesses who are mothers of men and things and there are goddesses who are mothers of men and gods and mistresses of the universe. These different classes of mothers show that the mother-goddess conception, in full

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113. Rv. VII. 15. 12.
114. Rv. VIII. 77. 2.
115. Rv. X. 70. 8. It may be that Ghṛtapadī is an adjective meaning "butter-footed" and refers to Iḷā. See also Rv. VII. 16. 8 in which she is called " butter-handed."
116. Rv. III. 54. 14.
117. Rv. IX. 19. 4, 5.
118. Rv. I. 185. 2, 11.
119. Rv. III. 85. 13.
120. Rv. IV. 55. 6.
121. Rv. I. 185. 5.
122. Rv. III. 55. 12.
123. Rv. III. 25. 3.
124. Rv. II. 2. 4.; IX. 99. 3.
125. Rv. VII. 92. 8.
126. Rv. X. 17. 6.
127. Rv. V. 53. 7.
128. Rv. II. 2. 9.; IV. 41. 5.
129. Rv. IX. 66. 6.
130. Rv. X. 61. 19.
131. Rv. IV. 33. 8.

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connotation of the term, was widely popular among the Ṛgvedic Aryans. The final development of this conception follows precisely the same path as the development of this conception has followed in other ancient religions. Next, from different mother-goddesses there arise one pre-eminent mother in whom is embodied the conception of the All-Mother, who is not only the mother of men, gods and all created things but also the cause of everything, past, present and future, from whom springs all life and to whom it returns on death.

Araṇyānī is spoken of as a mother.[132] Plants are invoked as mothers.[133] Waters are mothers of Agni; they are invoked as mothers; they are called affectionate mothers.[134] Rivers are mothers, they are Indra's nurse.[135] Sarayū, Sarasvatī and Sindhu are spoken of as mothers.[136] Sarasvatī is the best among mothers, rivers and goddesses.[137] Rātri is a mother.[138] Araṇi is invoked as a mother; she is the mother of Agni; she is the supporter of creatures.[139] Mahī is spoken of as the mother of all.[140] Dakṣiṇā is the mother of Sūrya.[141] Bṛhaddivā is called a mother; in another place she is invoked along with Iḷā, Sarasvatī and Rākā.[142] The quarters of the globe are young mothers.[143] Sinīvālī is the nurse of men.[144] Indramātās are spoken of as adepts in sacrificial rites.[145] Śavasī is the mother of Indra.[146] The ten fingers are called mothers of Agni.[147] Saraṇyu is the mother of the Aśvins.[148] Dyāvā-Pṛthivī are Bṛhaspati's mother, mother of the world, mother and creatrix, mother of the gods.[149] Pṛśni is the cloud-mother and cow-mother; she is the mother of the Maruts; all the gods sit in her lap and the sun and the moon remain near her for revealing the universe with their light; she is the cow.[150] Pṛthivī is frequently addressed as mother; she is the mother of men and things; she is the generous mother earth[151]; she is the mother of Agni[152]; mother of

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132. Rv. VIII. 60. 15.
133. Rv. X. 97. 2.
134. Rv. III. 9. 2.; X. 17. 10.; X. 9. 2.
135. Rv. V. 42. 12.
136. Rv. X. 64. 4.
137. Rv. II. 41. 16f.
138. Rv. VI. 55. 5.
139. Rv. III. 23. 3.; III. 29. 3, 1.
140. Rv. V. 41. 15.
141. Rv. III. 5. 1.
142. Rv. X. 64. 10; V. 42. 12.
143. Rv. III. 54. 14.
144. Rv. II. 32. 6.
145. Rv. X. 153. 1.
146. Rv. VIII. 45. 5; VIII. 77. 2.
147. Rv. III. 29. 13.
148. Rv. V. 17.
149. Rv. VII. 97. 8; III. 25. 3; IX. 99. 3; X. 110. 9.
150. Rv. II. 34. 2; VIII. 94. 12; I. 38. 4.
151. Rv. I. 89. 2; IX. 89. 1; V. 43. 2.
152. Rv. V. 1. 6.

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Vanaspati,[153] of trees and plants[154]; she holds all things in her lap[155]; she is the mother of men and movable and immovable things[156]; she is the queen of the universe[157]; as fertile mother she is identified with the cow and with Aditi.[158] Uṣas essentially a youthful goddess of bewitching charms, is several times invoked as mother.[159] She is also spoken of as the mother of the gods and rival of Aditi.[160] The great Aditi is the mother of the Ādityas ; she is the mother of Indra, Mitra, Aryaman, Sūrya, Dakṣa, Bhaga[161]; the gods are invoked as sons of Aditi ; she is spoken of as the mother of kings.[162] The Go or Dhenu is the common symbol, as has been seen, of nearly all the important mother-goddesses and of many personifications conceived of as female. The Go is the mother of the Maruts ; she is revered everywhere[163]; mother of the Rudras, daughter of the Vasus, sister of Āditya and abode of nectar, she is the immaculate cow Aditi[164]; she is mother.[165]

Among mother goddesses referred to above the more prominent mothers are Sarasvatī, the river-goddess who is also the goddess of knowledge, Uṣas, Pṛthivī, Pṛśni and Aditi. Dyāvā-Pṛthivī may be left out, because though sometimes invoked as mother and even mother of all, and frequently spoken of as female, they are also addressed as father and mother and this might have been the original conception of the pair. In any case, the hymns addressed to Pṛthivī alone and incidental references to her in hymns addressed to others show that she had come to be recognised as an independent deity. There is another deity who should be mentioned in this connection. The position of Go or Dhenu in the Ṛgveda is unique ; but it is clear from the references to her that as a deity she has no longer an independent status, whatever might have been her earlier position. She has become a symbol of beneficence, fertility, innocence etc. She is constantly identified with Vāk, Pṛśni, Pṛthivī and Aditi. Other deities and objects with which she is identified or compared have been referred to. The

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153. Rv. III. 8. 1.
154. Rv. IX. 69. 3.
155. Rv. I. 85. 2.
156. Rv. I. 159. 2.
157. Rv. VI. 70. 2.
158. Rv. I. 164. 9; I. 72. 9.
159. Rv. VII. 81. 4 ; I. 123. 3 ; V. 5. 6. VII. 75. 4. etc.
160. Rv. I. 113. 19.
161. Rv. III. 48. 2; 54. 10; 67. 1. VIII. 47. 9 ; X. 88. 11. VII. 41. 2.; X. 77. 4.
162. Rv. X. 63. 13 ; II. 27. 7 ; 30. 2.
163. Rv. VIII. 94. 1.
164. Rv. VIII. 101. 14.
165. Rv. IV. 5. 10.

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Dhenus are identified even with Indra,[166] but this may be taken simply as rhetorical. There are hymns addressed to Dhenus,[167] but they are not deified, only their material value is emphasised. It is quite different when Aditi is called the immaculate cow, when it is said that the Ṛbhus made the *viśvarūpā dhenu*[168] who is the creatrix or sender of the universe and Pṛthivī is called *viśvarūpa* cow.[169] To take all these references merely as relics of an older theriomorphism is difficult, because in the Ṛgvedic religion theriomorphism has left its well-recognised traces in the shape of animal vehicles with which all the important male deities are provided.[170] We shall return to this question later on.

Of the five goddesses Sarasvatī, Uṣas, Pṛthivī, Pṛśni and Aditi, Sarasvatī is spoken of as the highest among goddesses and best among mothers but she is nobody's mother in particular ; Uṣas is spoken of as the mother of the gods, but none among the gods is called her son, except only indirectly Sūrya, whose relations with her are peculiar, as he is also her father and husband ; Pṛthivī is the mother of men and things ; Pṛśni is the mother of the Maruts and all the gods sit in her lap ; Aditi is the mother of nearly all the principal gods and so she is called the mother of kings. Thus Uṣas and Aditi are the only two who are honoured by being called mother of the gods and they are appropriately spoken of as rivals.

Of the two rivals Uṣas is the preserver of men[171] goddess of earthly treasure,[172] benefactress of men,[173] preserver of the world,[174] the greatest goddess, producer of food,[175] dispeller of enemies,[176] guide of men,[177] curer of disease,[178] inspirer of the five tribes[179] and she is called Arya-patnī.[180] Uṣas does not rise above a benefactress of men and preserver of the world ; though she is called mother of the gods and the mightiest goddess she does not come near the conception of the All-mother.

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166. Rv. VI. 28. 5.
167. E.g., Rv. VI. 28.
168. *ye dhenuṁ viśvajuvaṁ viśvarūpām* etc. Rv. IV. 33. 8.
169. Rv. I. 164. 9.
170. It is noteworthy that the female deities in the Ṛgveda have no animal vehicles. This is undoubtedly significant. We have to come to the age of the epics, or more precisely, to the age of the Purāṇas, to find female deities in possession of animal vehicles.
171. Rv. I. 12. 3.
172. Rv. I. 113. 7.
173. Rv. VII. 75. 1, 2.
174. Rv. VII. 75. 4.
175. Rv. VII. 79. 3.
176. Rv. VII. 81. 6.
177. Rv. VII. 81. 1.
178. Rv. I. 12. 1.
179. Rv. VII. 79. 1.
180. Rv. VII. 6. 5.

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The mother-goddess conception may be said to reach its culmination when the abstract idea of the cosmic principle as the source of all creation is conceived of as female. Twice in the Ṛgveda the conception of the supreme deity as a goddess finds expression in noble words. Early in the first Maṇḍala we find that Aditi the great mother is hymned as follows :—"Aditi is the sky ; Aditi is the mother, the father, the son ; Aditi is all the gods, Aditi is the five tribes, Aditi all that is born and all that shall be born."[181] With reference to this verse Hopkins remarks : "Aditi makes perhaps the first approach to formal pantheism in India, for all gods, men and things are identified with her."[182] Aditi here embodies the conception of god-head which a Hindu strives to reach from his worship of the concrete, personal god. Regarding the Rudra-hymn (Rv. X. 125) Hopkins observes, "This is almost Vedāntic pantheism with the Viṣṇuite doctrine of 'special grace' included."[183] This sūkta is known as the Devī sūkta. "What is there in the great Devī sūkta which the Śākta tantra does not teach ?" asks Sir John Woodroffe.[184]

It will be seen that, so far as the basic idea of the All-mother is concerned, everything is contained already in Rv. I. 89 and X. 125, and even the later sectarian Śākta texts add little to this idea. But there is no doubt that this abstract conception of the All-Mother which is embodied in Aditi could not have been reached all on a sudden. There are, in fact, clear indications of the earlier stages of the development of this conception. There is in the first instance the tendency to represent as female deified natural phenomena, natural objects, abstract qualities and functions, several objects connected with sacrifice and beneficent and evil spirits etc.; next follow the conception of female counter-parts of certain male deities who take active part in sacrifice, the conception of individual goddesses as mothers of certain gods, invocation of the personifications of certain useful objects such as water, plants etc. as mothers ; there follow next a number of goddesses who are spoken of as mothers of men and things and of the gods ; finally in the abstract conception of Aditi is reached the highest pantheistic conception of the All-Mother. All this proves that the worship of female deities though less prominent than the worship of male deities, is not of inconsiderable importance in the Ṛgveda, an importance which, as we have observed, has been overlooked or unconsciously minimised by Vedic scholars.

181. Rv. I. 89. 10.
182. Hopkins, *Religions of India*, p. 72.
183. *Ibid.*, p. 143.
184. Sir John Woodroffe, *Shakti and Shakta*, p. 50.

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This is probably accounted for by the Vedic attitude towards female deities and partly by the fact that while such a height is reached in the conception of the All-Mother there is no corresponding concrete figure embodying this conception. This means that there is no single goddess in the Ṛgvedic pantheon who towers over other gods and goddesses and who has a greater or at least the same importance in the ritual part of the Vedic religion as the male gods. Now, from what is known of the development of the mother-goddess conception in other countries it would appear that the development proceeded generally from the concrete to the abstract, from the local to the universal. It may be stated generally that the highest point in the mother-goddess conception is reached in other countries in the ancient world when a local or functional goddess comes to assimilate other goddesses and acquires their attributes and gradually rises to the position of mother of men, birds, animals, vegetation and next to that of the mother of the gods. Identified with the earth, the source of life and nature she comes to be regarded as the universal mother or All-Mother. Innini-Ishtar, Anahita, Isis, Cybele, Rhea, orginally earth or nature goddesses, rose to the position of universal mothers in this way.

There is no evidence in the Ṛgveda and later Vedic literature on which it may be said that the development of the Ṛgvedic conception of the All-Mother proceeded precisely in this way. On the contrary, we have an abstract conception of the supreme deity, all-prevasive and immanent in all, conceived of as female and expressed in exalted language. Whether the fact that this conception finds expression in connection with Aditi has any special significance cannot be known because she appears as an abstract figure from the very beginning and her earlier history cannot be traced from the Ṛgveda. In the Ṛgveda she has no great ritual importance and she pales into comparative insignificance in the later Vedas and from the epic period on she is almost forgotten. In actual status too, Aditi is not much superior to some other goddesses, e.g., Uṣas and Pṛśni, both of whom are called mother of the gods. It is not till we come to the age of the epics that the supreme mother in concrete, comparable to the supreme mother in other ancient religions, emerges fully in view. This absence of a concrete figure corresponding to the exalted abstract conception of the All-Mother marks one of the differences of the Vedic religion from other ancient religions. There is, again, a difference between the Vedic attitude to goddesses and the attitude to them in the other religions of the ancient world. The Vedic religion is a religion, as is evident, of Soma sacrifices and the importance of the Vedic deities depends generally on the measure of share assigned to them in the sacrifices. Whatever might be the cause, the share

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assigned to the female deities is much less in comparison with that given to the male deities. This means that notwithstanding the high development of the mother-goddess conception and the large number of female deities known in the Ṛgvedic period, goddesses are generally given a subordinate position in the Vedic sacrificial religion. It is no satisfactory answer to the question why it should be so, to say that the Vedic Aryans were a patriarchal, pastoral people and therefore were not partial to female deities. We have the great figures of Uṣas, Pṛthivī, Sarasvatī, Vāk, Nirṛti and a numerous pantheon of female deities to prove the contrary. No people apathetic to female deities could have conceived of the figure of Uṣas or risen to such a height of the conception of the All-Mother as has been done in the Ṛgveda. Is it possible that this height was reached before Soma sacrifices and Indra cult came to predominate the Ṛgvedic religion? We shall take up this question later and for the persent we draw attention to the fact that having small ritual importance mother-goddesses in the Ṛgveda remained in the background.

Probably this absence of ritual importance accounts for the fact that the prominent Ṛgvedic goddesses with the exception of Uṣas and Sarasvatī and her group of sacrificial deities appear to have no regular cult. They are invited along with other gods to take part in sacrifices and prayed to for gifts, e.g. progeny, riches etc., but none of them has any special function assigned to her. It is of course quite different with the purely functional female deities in the later Vedic literature. But in so far as the Ṛgveda is concerned it is undoubtedly curious that functions which are eminently suited to and appropriately belong in other countries to female deities are given to the male deities. Pūṣan, Prajāpati, Viśvāvasu, Bhaga, Aryaman, Agni etc. are connected with the marriage ceremony. Prajāpati and Indra are prayed to grant children to married couples.[185] It is Viṣṇu who promotes conception and protects the embryo.[186] The Aśvins are concerned with pregnancy and safe delivery.[187] Prayers for offspring are made indiscriminately to nearly all deities. Though the desire for male offspring is so frequently and persistently expressed it is curious to note that the share of connection with parturition given to female deities is much less than the share given to male deities.[188] Again, deities connected with agriculture are in the Ṛgveda, contrary to expectation, all male with the exception of Sītā and Urvarā, an extremely vague

185. Rv. X. 85. Agni—Rv. V. 3. 2; 28. 3.; VI. 14. 6.
186. Rv. X. 184. 1; VII. 36. 9.
187. Rv. V. 78. 6, 9; X. 39. 7.
188. Sinīvālī—Rv. II. 32. 6, Sarasvatī and Sinīvālī—Rv. X. 184. 3.

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personification of fertility. Indra, Agni, Śambhu, Soma, Parjanya, Kṣetrapati, the Aśvins are the gods that are connected with cultivation, fertility of the soil and increase of products.[189]

Now it has to be admitted that this general neglect of female deities, absence of cults of the more important goddesses and attribution of functions which are generally given to female deities in other ancient religions to male deities in the Ṛgveda are difficult to reconcile with the existence of so high a development of the conception of the All-Mother as is found in that text. If the view that human reasoning develops from the concrete to the abstract is correct and if we have to rely on parallels in other ancient lands we cannot take it that the high abstract conception of the All-Mother present in the Ṛgveda was reached without earlier cultural stages at which concrete female deities were worshipped preceding the age of Ṛgvdic sacerdotalism and abstraction. Is it possible to get a glimpse from the Ṛgveda of these earlier stages when functional female deities enjoyed equal status with male deities? Can we know whether one of these female deities became more popular than the others, assimilated several of them and began to rise in importance above others?

The Ṛgveda does not of course reveal a static condition of religion; it refers often to pre-Ṛgvedic times, alludes clearly to older myths not always intelligible to us and records changes in the position of different deities. But in the case of no specific deity whose past is alluded to is it possible to obtain satisfactory information as to what his conception and attributes actually were before the Ṛgveda and in what respect they were different from the Ṛgvedic conception and attributes. Accepting this limitation we can still search for light by digging into the hymns, so to say, addressed to a particular deity as regards the variety of attributes given to him or to her. By following this procedure we come to know that a large number of Ṛgvedic deities do not represent homogeneous conceptions. A deity is given attributes so mutually contradictory that reconciliation with the circumstance is possible only on the assumption that the particular deity represents a syncretic conception, that he has absorbed in his concep-

189. The Aśvins—Rv. I. 117. 21.
Agni—Rv. VIII. 71. 12.
Śambhu—Rv. VII. 35. 10.
Soma—Rv. IX. 91. 6.
Kṣetrapati—Rv. IV. 57.; X. 66. 13
Parjanya—Rv. VII. 100. 1, 6.
Indra—Rv. VIII. 21. 3; 78. 10.

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tion several minor deities, who on assimilation, to whatever causes it may be due, have left their attributes and sometimes their names to the absorbing deity. The Ṛgveda does not permit us to study this process of syncretisation in detail as it presents to us certain completed results in many cases and as our information about the pre-Ṛgvedic stage of the religion embodied in the Ṛgveda is so meagre. At any rate, for finding an explanation from the Ṛgveda itself, if it is possible, for the attitude to female deities noted above and the presence of an exalted, abstract conception of the All-Mother we may carefully examine the attributes given to some of the prominent mother-goddesses.

It is proposed now to examine in some detail the attributes given to Sarasvatī, Pṛthivī, Aditi and Uṣas and the relations in which they stand to male deities.

Among male deities Sarasvatī is invoked once along with Rudra, Viṣṇu, Vāyu etc.[190] and again with Pūṣan, Mitra, Varuṇa, Maruts, the Aśvins, Tvaṣṭṛ, Savitṛ etc.[191] In another place she is invoked together with Pūṣan, Viṣṇu, seven Sindhus, waters etc.[192] She is invoked with the Maruts.[193] They are called her friends.[194] It is stated incidentally that she was with Indra.[195] She is connected with Ancestors, with whom she goes in the same chariot.[196] She is spoken of as a hero's wife,[197] but there is no mention of any such relation between her and any of the male deities. As a sacrificial goddess she is closely connected with Iḷā, Mahī and Bhāratī[198]; in the same connection she is often invoked along with the wives of the gods[199]; she is also invoked with Rākā.[200] With Sinīvālī she is invoked once in connection with parturition.[201] As a river she is called seven-sistered ; she is invoked with the seven Sindhus and Vanaspati to preserve sacrifice[202]; again with Sarayū, Sindhu and other rivers who are called mothers.[203] Residence

190. Rv. VI. 50. 12.
191. Rv. IX. 81. 4.
192. Rv. VIII. 54. 4.
193. Rv. II. 30. 8.
194. Rv. VIII. 96. 2.
195. Rv. X. 131. 5.
196. Rv. X. 17. 8, 9.
197. Rv. VI. 49. 7.
198. Rv. V. 5. 8; IX. 5. 8; X. 74. 8; X. 110. 8.
199. Rv. V. 46. 2; 49. 7 ; VII. 70. 6.
200. Rv. V. 42. 12.
201. Rv. X. 184. 2.
202. Rv. VIII. 54. 4.
203. Rv. X. 64. 9.

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on her banks is desired by the Ārya people[204]; sacrifices used to be performed on her banks.[205]

She is instructress of men and creatrix of truthful speech[206]; she is called Sūnṛtā Devī[207]; she is charitable, beneficent[208]; she is a beautiful, well-formed, white-complexioned goddess[209]; she is warlike, terrible, destructive of the enemy; she kills the reviler of the gods, protects those who are engaged in battle, defeats all the enemies of the Vedic singers and she is invoked in all battles; she gives prosperity to the five tribes and land to men.[210] She is the best among rivers, among goddesses and among mothers.[211] Her might is so great that even gods worthy of worship approach her on bent knees.[212]

Sarasvatī has thus two aspects, she is a holy river and a goddess. She is purifier as a river and as a goddess she presides over truthful speech and knowledge. Devotion to her as a holy river finds ardent expression. As a goddess she has considerable ritual importance and is generally grouped together with Iḷā, Mahī, Bhāratī and the wives of the gods. Among male deities she is not intimately connected with any one except perhaps the Maruts who are her friends. She is spoken of as a mother but there is no mention of any son or daughter of hers. Similarly she is called a wife, but there is no mention of a husband. In the 6th Maṇḍala there is a new development of her conception. She appears suddenly as a mighty goddess of war who is feared even by the gods and her aid is invoked in battles. From a white-coplexioned, beautifully-formed goddess she becomes a terrible-looking goddess dealing death to enemies. She appears also as the guardian or tutelary deity of the Vedic peoples for whom she shows her affection in various ways. The popular aspect given along with Sinīvālī is curious and in this respect she is associated with Viṣṇu. There is an attempt at anthopomorphic representation of her as a goddess. Her connection with ancestors is also to be noted.

(To be continued)

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204. Rv. III. 23. 5.
205. Rv. VIII. 21. 17, 18.
206. Rv. I. 3. 10, 11, 12.
207. Rv. I. 40. 3.
208. Rv. VII. 96. 3, 4.
209. Rv. IX. 81. 4. VII. 95. 6.
210. Rv. VI. 61.
211. Rv. II. 41. 16.
212. Rv. VII. 95. 4.

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VĀHĪKA AND BĀHLĪKA

By PADMA MISRA

Vāhīka as the name of a country and of a people is generally found in Sanskrit literature both sacred and secular. The significance and extent of this Vāhīka has been a subject of serious discussion by many scholars. The late Dr. K. P. Jayaswal while reflecting on this question in his famous book *Hindu Polity* (vol. I, p. 38), remarks, "I think the word Vāhīka means 'the country of the rivers', and as such, the Vāhīka-land would comprise the Sind valley and the Punjab. These are exactly the limits given in the Mahābhārata ; '(the Vāhīka) that live in the valleys of the five rivers and in that of the Sindhu as the sixth'." He continues in the same connection : 'From the known history of some of the Vāhīka republics of the grammar, we can say that the Vāhīka land did include Sindh.' He refers to Sylvain Lévi, the French savant, who had written a note on this topic while considering the extent of Kharoṣṭra and its identification with N. W. Frontier of India, Khotan etc., and its relation with Kharoṣṭrī writing (*I.A.*, Vol. XXXV. p. 17-18). We have seen that Jayaswal based his conclusions on some verses from the Karṇa Parva of the Mahābhārata, the translation of which was quoted by S. Lévi. According to these, Vāhīka was the land through which flowed Śatadru (Sutlej), Vipāśā (Beas), Irāvatī (Ravi), Candrabhāgā (Chenab), Vitastā (Jhelum) and the sixth Sindhu (Indus). There were forests of Pīlū, and it was away from the mountain (VIII. 44. 31-2). The name of the mountain is not given in this verse, but it seems to refer to the Himalayas, as in a previous verse Vāhīkas are said to have been settled away from the Ganges, Jumna, Sarasvatī, Himalayas and Kurukṣetra (VIII. 44, 6-7). It is apparent from this that Vāhīka corresponded to the Punjab, when Karṇa Parva was compiled.

Let us see if this is supported from some other source as well. If we take the Sūtras of Pāṇini first, we find that he has mentioned Vāhīka in two of his Sūtras (IV. 2, 117 and V. 3, 114). The first of these is *Vāhīka-grāmebhyaśca* which merely says that the names of the Vāhīka villages or towns take a certain suffix, so we cannot learn much from this. But *the following rule mentions* Uśīnara in such a way that it seems probable that Uśīnara was included in Vāhīka. In fact, the authors of Kāśikā make it quite clear in their commentary on this Sūtra (*I.C.* Vol. VI. p. 129-30). The second Sūtra, which mentions Vāhīka, is more illuminating and is as follows : *Āyudhajīvisaṃghāñ-ñyaḍ Vāhīkeṣv-abrāhmaṇa-rājanyāt.* Though this does not tell us what was exactly meant by Vāhīka, nevertheless, it refers to some

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political units called Saṁgha, which were in the Vāhīka country. Some of these have been given by Kāśikākāra to illustrate this sūtra, among which Mālavya and Kṣaudrakya also occur. These have been identified with Malloi and Oxydrakoi of the Greek historians, who place them in the Punjab (*I.A.*, Vol. I. p. 23). It is quite probable that Vāhīka was another name of the Punjab, as Sir R. G. Bhandarkar had pointed out long ago (*I.A.*, Vol. I, p. 22). Mr. V. S. Agrawala has gone one step further and has identified some of the Vāhīka villages and towns mentioned in Mahābhāṣya and Kāśikā with some towns of the Punjab (*I.C.*, Vol. VI, p. 129 ff.). These identifications also prove that Vāhīka comprised at least some parts of the Punjab, if not the whole of it. As most of the places identified by Mr. Agrawala are in the Salt Range, it seems that Vāhīka *par excellence* was in the Salt Range, though the whole Punjab was generally known by this term. We learn from the Mahābhārata that this was not the only name of the Punjab ; it was also called Āraṭṭa, Jartika and Pāñcanada (VIII, chap. 44, vs. 10 & 32, chap. 45, vs. 29 & 38).

The earliest reference to Vāhīka, however, is in the following passage of Śatapatha Brāhmaṇa : *Agnir vai sa devas ; tasyaitāni nāmāni : Śarva iti yathā prācyā ācakṣate, Bhava iti yathā Bāhīkāḥ (Ś.B.* I., 7, 3, 8). Eggeling renders it as : 'For indeed Agni is that God,—his are these names : Śarva as the eastern people call him, Bhava as the Bāhīkas call him' (S.B.E., Vol. XII, p. 201). This tells us that Bāhīkas were a people who worshipped Bhava (a form of Rudra). It is worthy of note here that the Bāhīkas are mentioned as worshipping an Aryan deity, i.e. Bhava, which was another name of Agni according to this Brāhmaṇa. We do not find any derogatory or deprecating remarks about them here, as are to be found in plenty in the Mahābhārata. In the epic they are called *malaṁ pṛthivyā Vāhīkāḥ*—the scum of the earth (VIII. 45, 23). They are described as impure, outside the pale of religion and their company is to be avoided by all means. Still more deprecatory are the verses : *dhānāgauḍyāsavaṁ pītvā gomāṁsaṁ lasunaiḥ saha | apūpa-māṁsa-vāṭyānām āśinaḥ śīlavarjitāḥ | hasanty atha ca nṛtyanti striyo mattā vivāsasaḥ* (Mbh. VIII. 44, 11-12). "They drink the liquor called Gauḍa, and eat fried barley mixed with meat. Of righteous practices they have none. Their women intoxicated with drink laugh and dance in state of nature." Their caste-system was very flexible : *tatra vai brāhmaṇo bhūtvā tato bhavati kṣatriyaḥ | vaiśyaḥ śūdraśca Vāhīkas tato bhavati nāpitaḥ || nāpitaśca punar bhūtvā tato bhavati brāhmaṇaḥ | dvijo bhūtvā tu tatraiva punar dāso 'bhijāyate.* "One at first becomes a Brāhmaṇa and then a Kṣatriya. Indeed a Vāhīka would after that become a Vaiśya and then a Śūdra and then a barber. Having become a barber he would then again

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become a Brāhmaṇa. Returning to the status of a Brāhmaṇa, he would again become a slave" (VIII. 45, 6-7). The most interesting part of this description is that the followers of Vedic ritual could not even dream of these people having been created by the same Prajāpati who created them. So a fictitious origin for the Vāhīkas was suggested :—*Vahiśca nāma Hīkaśca Vipāśāyām piścakau | tayorapatyaṁ Vāhīkā naiṣā sṛṣṭiḥ Prajāpateḥ | te kathaṁ vihitān dharmān jānante hīnayonayaḥ* || "There are two Piśācas in the river Vipāśā named Vahi and Hīka. The Vāhīkas are the offspring of these two Piśācas. They are not creatures created by the creator. Being of such low origin how can they be conversant with the duties ordained in the scriptures?" (VIII. 44, 41). The first verse of this quotation seems to be an attempt to give an etymological explanation of the name of the Vāhīkas.

It deserves to be noticed in this connection that in some places of Sanskrit literature and in inscriptions we find the words Bāhīka, Bāhlika and Vāhlīka, used as the name of a country or people occupying practically the whole of the Punjab. Can this be a misreading for Vāhīka or is it another name for this country, or are they two different provinces? Let us take the last proposition first. Vāhīka and Bāhlīka cannot be different countries as the location suggested and the description given of the two tally perfectly. We have seen above that Vāhīka was practically the whole of the Punjab, and that the two demons, the mythical originators of these people, were on the Beas. In the Rāmāyaṇa Bāhlīka is spoken of as situated near Vipāśā (II, 68, 18-19 and *Journ. Andhra Hist. Res. Soc.*, Vol. IX, p. 87). There can be no doubt that Vāhīka of the Mahābhārata and Bāhlīka of the Rāmāyaṇa denote the same country. The latter cannot be a misreading either, as none of the three versions of the Rāmāyaṇa—Bombay, Bengal and Kumbhakonam—mentions any other reading. In the Mahābhārata itself Vāhīka and Bāhlīka are both used for the same country. Kumbhakonam edition gives *Bāhlīka* throughout the Karṇa Parva (chaps. 44 and 45), while Bombay and Bengal retain *Vāhīka*. The last two, however, read Bāhlīka in other Parvas. Thus Bāhlīkī is the adjective used of Mādrī, the second wife of Pāṇḍu and sister of Śalya (I. 125, 23). This implies that Śalya was a Bāhlīka, but in the Karṇa Parva Śalya is associated with the Vāhīkas. Further these two terms are confounded in connection with Śalya in different editions. In the Bengal edition he is called *Vāhlīka-puṅgavaḥ*—the bull among the Vāhlīkas (I. 67, 6, & I. 113, 3), while the other two versions have Vāhīka instead of Vāhlīka. When Vāhīka and Vāhlīka are confused or rather used as identical in connection with the same person they cannot denote two different provinces. In Sabhā Parvan also Vāhlīkas

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are mentioned among the northern peoples conquered by Arjuna (II. 27, 22). Here it most probably stands for Vāhīka. There is yet another instance where Bāhlīka is used for Vāhīka. We have seen above that the Vāhīkas are called the scum of the earth *malaṁ pṛthivyāḥ Vāhīkāḥ* (Mbh. VIII. 45, 23). In the Udyoga Parvan we find a parrallel passage : *malaṁ pṛthivyāḥ Bāhlīkāḥ* (V. 39, 80). This shows clearly that the two words were interchangeable at one period and were used for the same province without much distinction.

The question here naturally arises—how can the origin of the word Bāhlīka and its confusion with Vāhīka be accounted for? It seems probable that the foreign hordes, who came into India from Balkh or regions round about it, were given the name Bāhlīka, and that it began to denote foreigners in general, just as "Feringee" began to signify a foreigner (European) British, French or otherwise, when the Arabs came into contact with the crusaders, though it originally meant a Frank (=French).

As Bāhlīkas are distinguished from Śakas, Yavanas (Greeks) and Pāradas (Parthians) in the Mahābhārata (VII. 121, 13), and Kāmbojas, Yavanas and Śakas in the Rāmāyaṇa (IV. 43, 12), it seems that the meaning of Bāhlīka had narrowed down and its application had been restricted to some definite tribe of foreigners. It might have been the Kuṣāṇas, which "Bāhlīka" denoted. They (Kuṣāṇas) had come from Balkh and spread in the Punjab. Besides a Bāhlīka dynasty of three kings has actually been mentioned in the Viṣṇu Purāṇa (IV, 24, 17). They are misspelt as *Vāhnika* in Vāyu (99, 373), and have been merged into the kings of another dynasty in the Bhāgavata (XII, 1, 34). In any case it is clear that there was a dynasty of Bāhlīkas important enough to be noted in the Purāṇas. As Yavanas and Tuṣāras have already been mentioned, "Bāhlīka" seems to refer to later Kuṣāṇas here. As they spread in the Punjab before moving onwards, they might have acquired the name "Bāhlīka" on account of their having emigrated originally from Balkh. As the Punjab was already known as Vāhīka and as the two terms greatly resemble each other in sound, the confusion, namely, the interchange of names, might have easily arisen. The description given in the Mahābhārata and reproduced partly above clearly shows that the people occupying the Punjab at that time were foreigners. So we can safely conclude that Vāhīka and Bāhlīka were really the names of one and the same province.

The name "Bāhlīka" was not unknown to the Kāśikākāra. As an illustration of one of Pāṇini's Sūtras (VIII, 4, 9), he gives *sauvīra-pāṇā Bāhlīkāḥ*, i.e. Bāhlīkas, who were fond of Sauvīra drink. This does not tell us much about them except that the people of this name

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were known then. This name was common in the Mahābhārata also, as many kings bearing this name are given (Parva I, chap. 67, vs. 25, 59 & 61 ; P. I, 188, 21, P. V, 3, 14). In one chapter some Bāhlīka kings are distinguished from one another. In the list of the kings, who came to the Rājasūya sacrifice of Yudhiṣṭhira there is the following clause : *tathā Śalyaśca balavān Bāhlikaś ca mahābalaḥ* (II. 34, 7). Bāhlika of this passage must have been a king of the Bāhlīkas or a king of this extraction. After a few verses is the sentence : *Vāhlikaś cāpare śūrā rājānaḥ sarva eva te* (II. 34, 13). This shows that the Bāhlīka province was divided into small principalities. Two of these at least were important enough to be mentioned separately in the epics and were situated at a considerable distance from one another, as the Rāmāyaṇa places one Bāhlīka in the west and another in the north. These references are in the Kiṣkindhā Kāṇḍa, where Sugrīva, while sending his monkey chiefs in search of Sītā, told them where to look for her. Those who were sent to the western quarter were told—*Surāṣṭrān saha Bāhlīkān śūrān* etc. (IV. 42, 6). They were to look for her in Surāṣṭra, Bāhlīka, Śūra and other places. Some chiefs were sent to the north and asked to search the following countries : *Kāmbojān Yavanāṁścaiva Śakān Āraṭṭakān api Bāhlīkān* etc. (IV. 43, 12). It is apparent from this that there were two Bāhlīkas, and that both of them were in the Punjab, as the names of the countries mentioned in association with them in the Mahābhārata can be traced in that province. The countries referred to along with Bāhlīka are : *Kāśmīrāḥ Sindhu-Sauvīrā Gāndhārā Daraśakās tathā / Abhīsārā Ulūtāś ca Śaivalā Vāhlikās tathā //* (VI. 9, 54), and *Bāhlikā Vāṭadhānāś ca Ābhīrāḥ Kālatoyakāḥ* (VI. 9, 46). Pargiter has given the following note in this connection in his English translation of Mārkaṇḍeya Purāṇa (p. 311): "One Vāhlīka or Vāhlika was situated in the plains of the Punjab alongside Madra-deśa and very possibly south of it (see *Rāmāy.* II. 70, 16-19), i.e. between the rivers Chenab and Sutlej ; and the other among the lower slopes of the Himalayas, very possibly between the Chenab and Beas."

The upshot of the above discussion is that Vāhīka was the earlier name of the Punjab, as it is mentioned not only by Pāṇini but also in such an early work as the Śatapatha Brāhmaṇa, which has been referred to above. After some time it became confounded with Bāhlīka from the occupation of the Punjab by the Kuṣāṇas, who had originally emigrated from Balkh. The two names were interchangeable for some time, as both are found in the Mahābhārata, but later on Vāhīka was completely replaced by Bāhlīka, which alone is to be found in the Rāmāyaṇa and the Purāṇas.

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THE NATIONALITY AND ORIGINAL HABITAT OF THE KUṢĀṆAS

By BAIJ NATH PURI

In connection with the history of the Kuṣāṇas, the first question that needs consideration is, who were the Kuṣāṇas and where did they come from? In order to answer this question, one would naturally ransack the Chinese annals and try to find out the nationality of the Kuṣāṇas and their original habitat. The sources being meagre, the chances of reaching a definite conclusion are remote. The Chinese annals are silent on the question of the original habitat of the Kuṣāṇas, though Fan-ye has pointed out that the Kuṣāṇas or (Kuei-Chouang) were one of the Hi-heou or Yabgou of the Yue-chi race.[1] The data supplied by the Chinese annals are so insufficient that we can hardly build up any structure on them. But there are other approaches to the problem. So far eminent scholars have in a way overlooked the ethnological and anthropological factors. The figures of the Kuṣāṇa monarchs on their coins can offer an index to their nationality. A close examination of the facial features may suggest something definite in this regard,—from which it should not be difficult to find out their original habitat and the racial stock to which they belonged.

As early as 1912, Mr. James Kennedy[2] pointed out that Kaṇiṣka belonged to the Turkish race because of his characteristic features. He has the pointed cranium, the salient cheek bones, the large long and heavy nose, the thick beards. .... and his coins represent him as a powerfully built barbarian king, clad in the loose coat and huge boot which were the common dress of Turkestan." According to Prof. Sten Konow[3], the Kuṣāṇas were Iranians, at least in language. He has pointed out that the affinity with the Śakas lead us to think that they were a Śaka clan or family. With the advancement in the science of Ethnology and Anthropology we are however in a position to throw much light on the subject. I had occasion to discuss the ethnology of the Kuṣāṇas with Dr. D. N. Majumdar, lecturer in Anthropology, Lucknow University, and I shall now try to describe

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1. Journal Asiatique, July–Dec., 1883, p. 324.
2. J.R.A.S. 1912, p. 670.
3. Corpus Ins. Ind., Vol. II, pt. 1, p. li.

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the facial features of the Kuṣāṇa monarchs from the busts on their coins. The coins have been selected from Gardner's catalogue of "Greek and Scythic kings of Bactria and India in the British Museum"—

Bust of Kujula Kadphises[4] :— This bust on the whole has the features indicating Mediterranean racial stock but there appears to be a very slight and indistinct Northern strain particularly in the nose and lips. The cheekbones appear to be full and well developed. The eyes are large and the Supra orbital region is not much developed. The ears are well shaped and heavier than those found among the Alpines. The forehead is more or less vertical and the roots of the nose are on the same plane as the forehead, indicating absence of any depression. The forehead, the nose and the lips may be said to be Nordic in type but the rest of the features affiliate the person to the Mediterranean stock.

Bust of Wima Kadphises[5] :— All the features in this bust represent Mediterranean affiliation. The nose is a little heavy but long, eyes are full but not very large. The cheek-bones are well developed and the forehead is large and slightly receding, the hair on the face is plentiful and the lips are medium thick.

Full Figure of Kaṇiṣka[6]. Here there appears to be some defect in the cast as the face has been depicted in an exaggerated form as compared to the body. The nose suggests a Mediterranean origin, the eyes, the forehead and the lips are all Mediterranean, but the Semitic cast is particularly apparent in profile.

Bust of Huviṣka[7] :— The forehead is slightly receding but makes a line with the root of the nose making an angle of 60° at the point where the *alae* meets the cheek. The eyes are large, long and more or less parallel with the lateral end of the lower jaw. The mouth is full, chin pointed, the nose is long, pointed, not hooked, and a little heavy. The moustache is prominent. The head appears to be a round one (Brachycephalic) even if allowance is made for the crown or head gear. The jaws are thicker than the nodices and the whole face gives an idea of heaviness which is corroborated by the parts of the body visible. The face on the whole suggests the Mediterranean stock.

Bust of Nahapāna[8]. The general appearance of the face indicates its affinity to the Mediterranean stock. The eyes are large, the mouth full, and lips moderately well developed. The chin is promi-

4. Plate XXI, 5. 5. Plate XXI, 7. 6. Plate XXVI. 6.
7. Plate XXVII, 16.
8. Rapson, Catalogue the Coins of Andhras and Kṣatrapas, No. 243.

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nent while the jaws are muscular. The forehead is short but vertical. It is in the nose that we find some abnormality. It has got an exaggerated appearance, and is thick, heavy, long and pointed. It may be due to the defect in the cast or disease or may be the effect of drinking. Otherwise this can be unmistakably traced to the Mediterranean stock.

Bust of Caṣṭana.[9] :— The difference between Nahapāna and Caṣṭana is most marked in the nose. The aquiline nose of Caṣṭana maintains its size and shape as in the case of Nahapāna but the abnormality manifest in the nose of Nahapāna is absent in the nose of Caṣṭana. The lower face is very much similar to that of Nahapāna. It is in the upper facial portion that a difference is noticeable. The jaws in both the cases appear to be well developed indicating great power of the *mandible muscles.* The eyes are large and well developed as in the figure of Nahapāna. The forehead is short but vertical. The ears are firmly developed in this case : in the case of Nahapāna they are not visible on account of the hanging locks of hair. The neck in both cases is muscular. Both the faces indicate a sort of determination, a firmness, which are characteristics of the Mediterranean race.

Wima Kadphises and Nahapāna :— Having described the facial features of both Wima Kadphises and Nahapāna, we may now compare them. A comparison clearly indicates that both belonged to the same racial stock. The passionate eyes and the expressive looks are indicative of their belonging to the Mediterranean race.

Having thus examined the facial features of the Kuṣāṇa monarchs as well as Nahapāna and Caṣṭana, we have come to the conclusion that they all belonged to the Mediterranean racial stock and most probably their original habitat was in Western Asia, which we shall prove very shortly. Dr. Majumdar agrees with me and he sees no objection in placing the Kuṣāṇas in Western Asia, which had Mediterranean racial stock. *It was from here that the Kuṣāṇas migrated.* Nahapāna and Caṣṭana also belonged to the Mediterranean racial stock and most probably their forefathers migrated with the Kuṣāṇas. Belonging to the same stock there is every reason to presume that they were sent as Viceroys by the Kuṣāṇa monarchs. This we have proved elsewhere. The racial affinity is another argument that adds confirmation to our contention. Now we have to exmine other arguments which can lend support to our thesis that the Kuṣāṇas belonged to Western Asia.

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9. Ibid., No. 260.

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If we peruse the Kuṣāṇa coins in greater detail we would unmistakably find the presence of OHPO in the coins of all the Kuṣāṇa rulers including the later Kuṣāṇas. On the coins of Kujula Kadphises, one would notice the figure of a bull instead of the figure of OHPO.[10] This god OHPO is associated with a goddess NANA or NANAIA in the coins of all the Kuṣāṇa rulers except Kujula Kadphises and Wima Kadphises and the later Kuṣāṇas. The question naturally arises if OHPO and NANA were the family deities of the Kuṣāṇas, they should have been in existence or worshipped in Asia Minor or Western Asia, if we want to associate the Kuṣāṇa family or race with that region. In other words we have to show that OHPO and NANA in some form or other must be deities of western Asia. We have however shown[11] that OHPO could be identified with *Vameśa* and NANA with *Ambā* or *Bhavānī* and they were both deities of procreation. Though we have identified them as Indian deities nevertheless either their prototypes or they themselves can be noticed in western Asia.

Recently Prof. Hem Chandra RayChaudhury[12] has drawn our attention to a prototype of Śiva in Western Asia. The name of this deity is *Teshub* and he was worshipped by the ancient Hittites in Western Asia. This deity is the chief male member of the Hittite pantheon. His representations have been found at Malatia, the sacred gallery at Boghazkeui, in the Zinjerli sculpture, in the monument at Isbekjur, on a stele at Babylon and also on coins at Hierapolis Syraiae. *He stands on a bull and has the three-pronged thunderbolt as his distinctive weapon.* He is also represented as bearing a bow, the trident and mace, battle-axe and dagger. His spouse is the great Mother-goddess venerated as *Mā* in Cappadocia. She was worshipped under different names and forms in Anatolia and neighbouring lands. Now an examination of a coin of Wima Kadphises[13] would clearly show that his OHPO stands on a bull and has the three-pronged thunderbolt. The spouse Mā was none else than the goddess NANA whose cult did exist in Western Asia. As Jastrow has pointed out,[14] "the oldest cult of the Mother Goddess, so far as our material goes, appears indeed to have been in URUK where she

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10. Whitehead, Catalogue of coins in the Punjab Museum. The Kuṣāṇa coins, No. 16, p. 180.
11. Indian Culture Vol. VII, No. 2. p.225 ff; Vol. VII, no. 4. p.492.
12. D. R. Bhandarkar Volume, pp. 301 ff.
13. Gardner, Catalogue, pl. XXV, 7.
14. The Civilization of Babylonia and Assyria, p. 233.

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is known as NANA but we may be quite sure that the cult was never limited to one place." Therefore both NANA and the prototype of OHPO namely Teshub were worshipped in Western Asia.

Now the fact seems to be that the Kuṣāṇas migrated from Western Asia, which was their original habitat at an early period. In course of time, they forgot the figure or icon of their deity Teshub but they held on to the Vāhana. This may account for the representation of a bull on the coins of Kujula Kadphises. With the accession of Wima Kadphises to power, the Indian element attracted the Kuṣāṇas, the old memories revived again and the Kuṣāṇa monarchs recognised in the God OHPO=Vameśa=Maheśa, the God of Western Asia, namely Teshub. He therefore very gladly styled himself *Māheśvara,* viz. a devotee of Maheśa, because worshipping Maheśa or Vameśa or OHPO was in fact worshipping their own original God Teshub. The matter is therefore quite clear. The Kuṣāṇas came from Western Asia, as proved by their Mediterranean racial features. This is confirmed by the fact that the old deities of Western Asia, namely Teshub, the prototype of OHPO = Śiva, with his bull and NANA, do find a prominent place on the Kuṣāṇa coins. Now whether the iconographical features of Teshub were taken from those of the Indian God Rudra or Śiva or vice verse, is a question that we reserve for discussion elsewhere. Here we shall conclude with one more argument in support of our theory that the Kuṣāṇas originally came from Western Asia.

The use of Greek by the Kuṣāṇa monarchs in all their coins is a very important matter that cannot be neglected or overlooked. At the same time we have to account for the ungrammatical use of the Greek legends on their coins. The answer to this problem is very simple. Greek was the language spoken by the Kuṣāṇas in Western Asia, but in the course of their migration they seem to have lost touch with Greek grammar in particular and the Greek language in general. This is the reason why there has not been a single inscription traced so far in Greek language in India either of the time of the Indo-Greek monarchs or even of the Kuṣāṇa period. So, though the love and patronage for the Greek script remained, the capacity to speak or write Greek correctly was wanting. All the same, for our consideration, the use of Greek is certainly very important when we consider the nationality or the racial stock to which the Kuṣāṇas belonged.

We think that these three arguments certainly prove that the original home of the Kuṣāṇas was in Western Asia and not in any other region. Their physical features, their deities and their patronage of the Greek language which was spoken in Western Asia, naturally confirm our thesis. We think that the ethnological consideration

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of the problem alone is sufficient data on which we can safely rely when building any theory as regards the origin of the Kuṣāṇas. But it has been possible for us to confirm and corroborate our contention through other pieces of evidence. We cannot say when the Kuṣāṇas migrated from Western Asia, but they were living on the upper side of the river Oxus when the Chinese Ambassador Chankien visited them in about 125 B.C.[15]

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15. Journal of the American Oriental Society, 1917, pp. 89 ff.

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LATIN AND SANSKRIT

(Continued from *I.C.*, vol. VII, p. 482.)

By BATAKRISHNA GHOSH

In word-formation, many I.-E. suffixes may be recognised in Latin, as well as suffix-less words such as *rēg-* (Skt. *rāj-*), *ped-* "foot" (Skt. *pad-*), etc. The thema-suffix *-o* (appearing as *-u* from the classical period) is in evidence in numberless forms ; cf. *deus nīdus ventus* corresponding to Skt. *devāḥ nīḍāḥ vātāḥ*. Feminine *o*-stems have been preserved in Latin and Greek ; cf. Lat. *fāgus* "beech-tree": Gr. *phēgós*, Lat. *cōrnus* "cornel-cherry": Gr. *krános*. But from the Indo European age the feminine suffix corresponding to *-o* was *-ā ;* thus Lat. *equa :* Skt. *áśvā*. Yet *o*-stems belonged to the latest strata of Indo-European words, and in the oldest words with feminine connotation no characteristic suffix can be found ; thus we find in Latin *pater* and *frāter* (Skt. *pitā* and *bhrātā)* confronted by the altogether different stems *māter* and *soror* (Skt. *matā* and *svásā)* in the feminine gender. The tradition of this stem-variation to indicate difference in gender was carried on independently by Latin in interesting pairs like *vir : uxor, senex : anus, marītus : spōnsa* etc. The disagreement in suffix between Lat. *dea* (older *deiva)* and Skt. *devī* is perhaps due to the comparative lateness of the I.-E. masculine stem **deiu̯os*. But feminine *ī*-stems too are clearly in evidence in Lat. *neptis* (< **neptīs)*: Skt. *naptīḥ*, etc. ; in forms like *rēgīna* (Skt. *rājñī)* the suffix has evidently been extended by *-nā*.

The Indo-European suffix *-i̯o-*, strengthened by various elements, became the most productive suffix in Latin ; the bare suffix can be seen, for instance, in Lat. *medius* : Skt. *mádhyaḥ :* Goth. *midjis,* Oscan *novius :* Skt. *návyaḥ* : Goth. *niujis.*—The Indo-European suffix *-lo* (cf. Skt. *vṛ̥ṣan : vṛṣalá,* Gr. *pakhús : Pakhúlos,* Goth. *wulfs : Wulfil-a)* became the diminutive suffix par excellence in Latin (cf. *pastillus lapillus* < **pastni-los *lapid-los).* Usually however it is initially strengthened by various elements, particularly by *-cu- (-culo-)*; hence the numberless words like *matercula, sororcula, frāterculus* etc. This diminutive-suffix *-culo* (< *-celo)* however should not be confused with the instrumental suffix *-culo* < prim. Ital. *-klo* < I.-E. *-tlo* (see LIS., p. 103), for which the Plautinian prosody in many cases actually guarantees the monosyllabic value *-klo-* inspite of the written form. The Indo-European agent-suffix *-ter* is clearly in evidence in Lat. *pater, māter,* and its thematised form *-tero* (LIS., p. 105), which later came to be used as a comparative suffix independently in the different I.-E. dialects, in Lat. *i-terum :* Skt. *itaraḥ,* etc. The older comparative suffix *-er(o)* may be seen in Lat. *s-uper infer- inter* corresponding to Skt. *úpara ádhara ántara,*

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Corresponding to the comparative suffixes *-er(o)* and *-tero* we have in Latin the superlative suffixes *-mus* (cf. *infimus* : Skt. *adhamáḥ)* and *-timus* (cf. *intimus* : Skt. *ántamaḥ).* The suffix *-terior* (cf. *in-terior)* is interesting, for in it the comparative suffix has been combined with the intensive-suffix *-i̯os* (Skt. *návyaḥ* : *návaḥ)* which may be found also independently in Lat. *sen-ior* "older" (Skt. *sánaḥ* "old"), *maior* "greater" (<**mag-i̯ōs,* cf. Lat. *mag-nus).* The commonest superlative-suffix of Latin is of course *-issimus.* It is tempting to suggest that it is nothing but the weak-grade form of the intensive-suffix (*-is* from *i̯os)* strengthened by the older superlative suffix *-mos.* But in that case the suffix should have been *-ismos* as we actually find it in *prīmus* <**prismos.* Latin *-issimus*—as well as *-errimus* and *-illimus*—therefore remains unexplained. The Indo-European superlative suffix *-istos* (LIS., p. 104) may be found in Latin only in one word, viz. *iuxtā* from **i̯ugistā* (Stolz-Leumann, § 172 XI F; Sommer, § 291).

The I.-E. participial suffix *-ent* (LIS., p. 99) of the present appears in all cases, numbers and genders in Latin without any ablaut-gradation of the stem; hence Lat. *ferēns* (<**ferents) ferentis* corresponding to Skt. *bháran(ts) bháratah.* The long vowel of *ferēns* should not be regarded as indicating an extended grade of the stem; it is in fact a case of compensatory lengthening consequent on the reduction of the following nasal in pronunciation before *s;* thus **ferents* > **ferens* > **ferē^{n}s* (see Sommer, § 136.b), which would have certainly become a wholly nasalless form but for the analogical influence of *ferentis* etc. The corresponding feminine stem was **bheront i̯ə* in the original Indo-European as is suggested by Skt. *bharantī* and Gr. (Cret.) *pheronsa* <**pheront i̯ă;* in Latin therefore the feminine stem should have been *ferentī-.* But as in Latin polysyllabic I.-E. *ī*-stems coincided with *i*-stems (cf. Skt. *naptíḥ* but Lat. *neptĭs), ferentī-* became *ferentĭ-.* The feminine form in nom. sg. should therefore have been **ferentis;* but through the syncope of *i* in the final syllable it further changed to **ferents* > **ferens* > **ferē^{n}s* > *ferēns.* In neuter, on the evidence of Skt. *bhárat* (<I.-E. **bher̥t),* the Latin form should have been **ferent* (asigmatic), but what we find is again *ferēns*—which has not been satisfactorily explained. Hence in Latin the present participle has the same form in all three genders in nominative singular.—The perfect participle of the active cannot be said to exist in Latin (Sommer, § 378), though however some scholars are inclined to connect the *v*-perfect of Latin (see below) with the Indo-European suffix *-u̯os* of the perfect participle (LIS., p. 99). The Indo-European perfect participle of the passive however is very much alive in Latin, so that in it the suffix *-tus* (<*-tos)* is hardly less productive than *-taḥ* in Sanskrit. We should note in this connection the law associated with the name of Lachmann

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(Sommer, § 83.6) according to which passive participles of the perfect in *-to-* protract their radical vowels where the suffix followed immediately after a media; hence *āctus* from *ăgō, lēctus* from *lĕgō,* but *spĕctus dīctus* from *spĕcio dīcō.*—Latin future participle in *-tūrus* of the active *(amatūrus* etc.) is still unexplained.—All the Latin forms of the infinitive present of the active are constructed with a basic formans *-se;* thus *es-se* "to be", *ēsse* "to eat" from **ed-se, īre* "to go" from **ei̯-se, da-re* "to give" from **da-se.* This *-se* may be identical with the suffix in Vedic *jīváse*—which in that case would have to be equated with Lat. *vīvere* < **gʷīu̯esai.*—The Latin supine in *-tum,* like the Sanskrit infinitive in *-tum,* is the accusative singular of a nominal stem in *-tu* (see LIS., p. 102).

In noun-inflexion Latin has retained in living use six of the original eight cases; the instrumental and the locative, though still clearly traceable in the language, are not recognised as independent cases. The dual number may be detected only in such forms as *duo* "two", *ambō* "both". Sommer (p. 348) accepts also inscriptional forms like *Pomplio* as dual forms analogous to Vedic *áśvā*=Gr. *hippō.*

In nominative singular the sigmatic form may be clearly seen in *rēx vōx nīx* etc., and the asigmatic one in *pater* (*r*-stem) *homo* (*n*-stem) *viă* (*ā*-stem) etc. etc. Neuter *i*-stems are endingless in nom.-acc. sg. as in Sanskrit, thus *mare* "sea" (out of *mari,* with the weakening of *-i* to *-e* in the final syllable). Neuter *u*-stems however lengthen their stem-final in similar position, thus *genū cornū* etc. These are in fact plural forms of the type Skt. *purú* (LIS., p. 121) used at first as collective singulars and then generally in singular (Sommer, § 229). The ending *-om* in nom.-acc. sg. of neuter *o*-stems is fully in evidence in Latin; thus Lat. *novom:* Gr. *né(v)on:* Skt. *návam,* etc.; later the ending *-om* of course became *-um.*—The post-consonantal accusative ending *-m* in singular (cf. Gr. *pód-a* < **pod-m̥*) has phonologically developed into *-em;* hence Lat. *dent-em patr-em:* Gr. *odónt-a patér-a* (Skt. *dánt-am pitár-am* are analogical forms). The ending *-m* may be seen after vowel-stems as in *equo-m, vim* < **vī-m* etc.—The Indo-European dative ending *-ōi* (cf. Avestan *ɪəhrkāi:* Skt. *vr̥kāy-a)* may be observed in the oldest inscriptional forms *numasioi duenoi;* the ending *-ō* (as in *amīcō)* of classical Latin cannot be directly derived from it. The corresponding feminine ending *-ae* (as in *mēnsae)* < *-ai* < *-āi* is in evidence also in Gr. *khṓrai:* the Sanskrit ending *-āyai* as in *sénāyai* is an Indo-Iranian innovation (see Wackernagel, III, § 60a).—As for the ending in ablative singular, we must remember that only the Indo-European *o*-stems had here a distinctive ending, and that in *-d* (see LIS., p. 14). This ending is in evidence in old inscriptional forms like *Gnaivod* etc.; but its *-d* was dropped in pronunciation about 200 B.C. In literature we find therefore only the end-

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ing *-ō* (e.g. *amīcō*). But we shall be very much mistaken to think that all—or even the greater part—of the Latin ablative forms are Indo-European ablatives. Syntactically the Latin ablative singular combines in itself the Indo-European locative (as in *in urbe*), instrumental and associative (as in *hastā percutere aliquem, cum amīcō*), and also the Indo-European ablative (as in *Gnaivod*). Many Indo-European locative and instrumental forms are therefore to be found among Latin ablative forms—not only in singular, but also in plural.—The Latin ending *-ī* in genitive singular as in *amīcī* is considered to be identical in origin with the feminine suffix *-ī*. The original meaning of *devī* was not "goddess" but "connected with the *deva*". And what is after all the meaning of *amīcī* (gen.) if not "connected with the friend"? There is therefore nothing to frown upon in this ingenious theory. The genitive ending *-ae* of feminine *ā*-stems as in *mensae* is an innovation of Latin. This *-ae* is derived from *-ai* < *-āī*, of which the element *-ī* was drawn through analogy from *amīcī* etc. The Indo-European genitive ending *-ās* (cf. Gr. *khṓrās*, also Skt. *gnās-pati*) of *ā*-stems is preserved only in some frozen phrases of the language of jurisprudence like *pater familiās*.—The instrumental does not exist as a separate grammatical case in Latin. Yet a few genuine instrumentl forms may be found in this language, e.g. *sacrō-* in the word *sacrō-sanctus* (cf. Skt. instr. *sánā* from *sána-* "old") and the pronominal adverbs *intrō* etc. (see Stolz-Leumann, § 191 g).—The locative too has not been recognised as a separate case, but locative forms are not rare in Latin; cf. *Rōmae* "in Rome" from older *Romai* like Gr. *Neméāi*. This locative ending *-āi* (of *ā*-stems) was strengthened by the postposition *-ā* in Indo-Iranian and further by *-am* in Sanskrit (LIŠ., p. 130). The locative ending *-ī* of Indo-European *o*-stems as in Latin *Beneventī*, *Corinthī* was in origin a *cvi*-formation like Skt. *śamī-kṛ-* (see Sommer, p. 341).

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The Indo-European ending *-ĕs* in nom. pl. (cf. Gr. *kún-es, pód-es* etc.) may be traced in Oscan—Umbrian forms like *-humuns* (:Lat. *hominēs*), in which the short vowel of the ending was syncoped phonologically. The corresponding Latin ending however shows a long vowel as in *patr-ēs homin-ēs* etc. (but not in forms affected by the Law of Iambus-shortening such as *pĕd-ēs*). Moreover the Indo-European ending *-ĕs* should have normally developed into *-is*. The Latin ending *-ēs* therefore should not be connected with I.-E. *-ĕs*; rather it is better to suppose that it is derived from the ending *-ei̯es* (cf. Skt. *ávayaḥ tráyaḥ* etc.) of I.-E. *i*-stems. I.-E. *u*-stems had the ending *-eu̯es* (cf. Skt. *sūnávaḥ*) which over *-ou̯es* became *-ūs* in Lat. *fructūs* etc. (Sommer, § 230). As in Greek (cf. *hippoi* for **hippōs*), so in Latin too the *o*-stems have taken the plural ending in nominative from the pronominal flexion; instead of **equōs* the primi-

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tive Latin form in nominative plural was **equoi*, which phonologically changed into the historical form *equī* (Sommer, § 199). In Oscan-Umbrian however the Indo-European substantive-ending *-os* was not only retained but also passed on to the pronouns in some cases (see Stolz-Leumann, § 192 e). The *ā*-stems too retained their original plural ending *-ās* in nominative in Oscan-Umbrian (cf. O. *scriftas*=Lat. *scrīptae*, U. *urtas*=Lat. *ortae*), but in Latin they show the ending *-ae* (e.g. *mensae*) derived from older *-ai* (cf. inscriptional *tabelai datai*) which was the result of the analogical influence of the masculine ending *-oi* on the original feminine ending *-ās* (Sommer, § 186).—Of the ending *-ns* in accusative plural, the nasal has phonologically disappeared in Latin extending the preceding vowel in compensation ; hence the forms *mēnsās, amīcōs, trīs* etc. in Latin ; *-ns* became *-ss* in Oscan (cf. O. *feihúss*) and *f* in Umbrian (cf. U. *vitluf*). In the case of *ā*-stems the nasal in the ending for acc. pl. disappeared already in the original Indo-European (see LIS., p. 129).—The Indo-European instrumental ending *-ois* (cf. Skt. *áśvaiḥ*) is still perceptible in a pronoun in the phrase *ab oloes* (=*ab illis*); but it became *-eis* and finally *-īs*. Latin dative forms like *agrīs* <**agrois* may contain a genuine instrumental ending, but they may also be locative forms like Skt. *ájreṣu* or Gr. *agroῖsi* (see LIS., p. 117). —Latin *i-*, *u-* and consonant-stems take the ending *-bus* in dative and ablative plural, *ovi-bus, artu-bus, rēg-i-bus, vōc-i-bus* etc.; so also diphthongal stems, cf. *rē-bus* (Skt. *rā-bhiḥ*) and *diē-bus* (Skt. *dyu-bhiḥ*). It is in evidence also in dual forms like *duō-bus ambō-bus*. There can be no doubt that this *-bus* is in some way connected with the element *-bhi* which is in evidence in Skt. *-bhyām -bhis -bhyas* and Gr. *-phi(n)*, but precisely how we cannot say (see LIS., p. 16).—The Indo-European plural ending *-ōm* in genitive (LIS., p. 40) is preserved in Latin after consonant stems (e.g. *frātr-um, can-um* etc.), *i*-stems (e.g. *tri-um* : Gr. *triῶn*), and *u*-stems (e.g. *magistratu-um*). But already before the age of Plautus the ending *-um* was largely supplanted by *-ōrum* formed after the corresponding feminine ending *-ārum* (cf. Lat. *is-tarum*) derived from the Indo-European pronominal ending **-āsōm* (cf. Skt. *tāsām*, Gr. *tάōn* from I.-E. **tā-sōm*). Even apart from isolated forms like *amicum, verbum* etc. in the older literature, the older ending *-um* however continued to be used after *r*-stems (e.g. *līberum*) and words of inordinate length (cf. *magnanim-um*). It is important to note that the ending *-ārum* may be traced in Oscan-Umbrian (Sommer, § 187) but not *-ōrum* (Sommer, p. 349, note 2), which was formed, as explained just above, on the analogy of *-ārum*.—Regarding the flexion of neuter stems, let us mention in passing that the collective plural expressed by the ending *-ā* as in Skt. *yugā* (LIS., p. 22) is known also in Latin (cf. *iuga* from *iugum*), but here this ending is not confined to neuter stems alone (cf. *loca* from *locus*). Neuter

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forms corresponding to Skt. *trí purú* (LIS., pp. 121-2) may be seen in Latin *trī(-ginta) cornū.*

Apart from stem variation, the chief characteristics of Indo-European pronominal flexion were the formantia *-sm-* and *-om-* (LIS., p. 138). Of these two, *-sm-* is found in Umbrian (see supra) and *-om-*, for instance, in Lat. *egomet* and *eum* (<**eḷ-om :* Skt. *ay-ám)* which came to be regarded as an accusative form in Latin on account of its ending (Sommer, § 273 a). The neuter pronominal ending *-d* (Skt. *tá-d* etc.) may be clearly seen in forms like *is-tud* "that"; in the case of the pronominal stem *i-* this dental ending was further strengthened by *-om :* thus Lat. *idem* (<**i-d-om)* = Skt. *idám* (LIS., p. 139). As for pronominal stem-variation, let us mention Lat. *ego mihi mēd* (with long vowel !) corresponding to Skt. *ahám máhyam mad.*

We now come to the verbal system of Latin. The first thing to note in this connection is that there is no trace of the augment in Latin or any other Italic dialect.—Present reduplication with *i* may be clearly perceived in Lat. *sīdō* (from **si-sdo *si-zdō):* Skt. *sídati,* Lat. *gi-gnō :* Gr. *gí-gnomai* etc., and perfect reduplication with *e* in *ce-cin-ī* "I sang" from *canō,* etc. Verbs beginning with *v* and *l* however do not reduplicate in Latin ; hence Lat. *vortit* against Skt. *va-várt-a* and Lat. *līquit* against Gr. *lé-loip-e.* Verbs beginning with "muta cum liquida" also do not reduplicate the root, thus *prandī* from *prandō* "I take brēakfast." Other old Indo-European languages show partial reduplication in such cases ; cf. Skt. *pa-prā* "he filled", Gr. *ké-krā-ge* "he shouts", Goth. *gai-grōt* "he wept." Verbs beginning with *sk st sp* lose the *s* in the reduplication-syllable in Sanskrit (e.g. *ca-skand- ta-stṛ- pa-spṛdh-),* but in Latin in such cases both the consonants are retained in the reduplication-syllable, though, through dissimilation, the *s* is dropped in the root-syllable ; thus Lat. *sci-ci-dī* from *scindō* "I split", *ste-tī* from *stō* "I stand" and *spe-pond-ī* from *spondeō* "I promise". That in the oldest period the reduplication-syllable was not regarded as an integral part of the verb but as something like a preposition is clearly suggested by the manner in which the reduplicating perfect form *vhe-vhaked* (=*fecit)* is written on the Prenestian brooch : there the reduplication-syllable is actually marked off from the verb.

The chief Sanskrit verbal stem-classes may be clearly perceived in Latin. Thematic stems with full-grade roots *(bhū-*class) may be found, for instance, in Lat. *ago veho peto* corresponding to Skt. *ájāmi váhāmi pátāmi,* and thematic stems with reduced-grade roots *(tud-*class) in Lat. *rudo dī-vido* etc.—Lat. *est*= Skt. *ás-ti* is an example of non-reduplicating athematic verbs, and its plural form *s-unt* shows the same striking ablaut-form of the root as Skt. *s-ánti.* Reduplicating athematic stems have been thematised in Latin, thus *si-st-o :* Skt.

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tiṣṭhāmi. An example of reduplicating thematic stems may be found in Lat. *sīdo* (beside *sedeo*)=Skt. *sīdāmi* (both from **si-sd-*).—Indo-European *i̯o*-presents are represented in Latin by verbs like *specio :* Skt. *páśyāmi, cupio :* Skt. *kúpyāmi, sepelio :* Skt. *saparyāmi, morior :* Skt. *mriyáte* etc. Indo-European nasal-presents are richly represented in Latin ; cf. Skt. *yu-ná-kti yu-ñ-jánti*=Lat. *iu-n-git iu-n-gunt*. As this example shows, the weak form *-n-* of the nasal suffix *-na-* has been generalised in Latin (as in all the Indo-European languages excepting Sanskrit); hence Lat. *linquo scindo* corresponding to Skt. *riṇájmi chinádmi*. Indo-European *neu*-presents are in evidence in Lat. *minuo sterno* (Skt. *minóti stṛṇóti*), and *nā*-presents in Lat. *li-no* (Skt. *vi-lināti*) etc. Of other Indo-European present-suffixes, mention may be made of *-sk̂(h)o-* (LIS., p. 149) as in *posco* <**pṛ̥k̂sk̂(h)ō :* Skt. *pṛcchāmi ;* the root-suffix *-sc-* became very productive in Latin (see Sommer, § 319. 4).—As for derivative verbal stems, let us mention the denominatives like *potīrī :* Skt. *pátyate* and causatives like *sopio :* Skt. *svāpáyāmi, torreo :* Skt. *tarṣáyāmi, iubeo :* Skt. *yodháyāmi* etc.—It is important to note that Indo-European *si̯o*-presents, which developed a futural meaning already at a very early date (see LIS., p. 153), cannot be traced in Latin. Future tense is expressed in Latin by quite a different means (see below). In Oscan-Umbrian, however, there is an *s*-future which in origin was nothing but a subjunctive of the *s*-aorist (Sommer, p. 524).

It will be clear from above that the chief Indo-European present-classes have been preserved in Latin in distinct types. But Indo-European aorists have got so much mixed up with the perfect in Latin that for our present purpose it will be best to treat the aorist as part of the Latin perfect-system.

A great part of the Latin reduplicating preterital forms is derived from Indo-European perfects ; cf. *tu-tud-ī :* Skt. *tu-tód-a*, Lat. *de-d-ī :* Skt. *da-d-é*, etc. Some of these reduplicating perfects, however, go back to reduplicating aorists of the original Indo-European ; thus *te-tig-ī* (from *tango*) corresponding to Gr. *te-tag-ôn* (see Autenrieth *sub voce*).—Latin perfect-forms with *ē* as against *ă* of the present (pres. *făcio :* perf. *fēcī*) are again of aoristic origin ; the perfect-form *fēcī* is derived from the Indo-European aoristic stem *dhē* (in present the stem is reduplicated, cf. Skt. *dá-dhā-ti*) extended by the increment *-k-* (as in Gr. *éthē-k-a*), and the present-form *făcio* from the reduced-grade form *dhə-k-* of that extended stem. Similarly *iaciō : iēcī, frangō : frēgī*, etc.; the absence of the nasal in *frēgī* and analogous forms is an additional proof of their aoristic origin (see LIS., p. 148).—The simple perfect of Latin may be the *a*-aorist (LIS., pp. 152-3) of Sanskrit ; thus Lat. *fidit scidit*=Skt. *ábhidat ácchidat* (Stolz-Leumann, § 241 C).—The *s*-perfect of Latin is the direct descendant of Indo-European *s*-aorist ; Lat. *dīxī vēxī* are essentially the same as Skt. *á-dikṣam á-vākṣam* (Sommer, § 358). In many cases an original guttural of the root comes to light only

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in the aorist-perfect form with *-s-*; thus *flūxī* from *fluō*=*fluu̯ō* < **flug*^{w}*ō*. The result of this state of things was that even roots which never had a guttural in final began to form aorist-perfects with *-x-*; hence *vīxī* from *vīvō* < **g*^{w}*īu̯ō*.—The story of the *is*-aorist in Latin is very interesting. Like other aorists it is buried amongst Latin perfects, but in a very inconspicuous place,—only in two personal endings in fact. The element *-is-* of the endings *-ĭstī* and *-ĭstĭs* in the second person singular and plural of perfect indicative (e.g. *tutudistī, tutudistis)* is supposed to be identical with the formans *-is-* of the Sanskrit aorist-forms like *á-ved-iṣ-am* (Sommer, p. 575).—Also the Latin *v*-perfect (cf. *sē-vī lē-vī* from *serō* "I sow" and *linō* "I besmear") is considered by Sommer (p. 558) to have originated from the athematic root-aorist. According to his ingenious theory, Indo-European **(e-)bhū-m* (Skt. *ábhūvam)* at first became **fūm* in Latin; when with the semasiological orientation towards the perfect the endings of perfect were substituted for those of the aorist, this **fūm* became **fū-ai* > **fu̯ai* > *fu̯ī* (>*fūi* > *fuī*).—Of Latin perfects of non-aorist origin let us mention lastly the non-reduplicating ones with the root-vowel in extended grade e.g. *clēpit* from *clĕpo*. They may be compared with the unreduplicating perfects of Gothic (see IC., vol. VII, p. 251) and Sanskrit (LIS., p. 37); thus Lat. *sēdimus* as well as Goth. *sētum* and Skt. *sēdima* may eventually be derived from I.-E. **se-zd-ə-mo* (Stolz-Leumann, p. 332).

Of the Indo-European imperfect (type Skt. *ábharam* : Gr. *épheron)* there is no trace in Latin. Already in primitive Italic the place of the Indo-European imperfect was taken by periphrastic forms constructed with *-ēbā-*, cf. *agēbăm agēbās agēbăt* etc. Of these forms the portions *-băm -bās* etc. are nothing but augmentless *ā*-aorists of pre-Italic antiquity (Sommer, p. 514) of the root *-bhū* : thus suffix *-băm* from **(e)bh(u)u̯ā-m, -bāt* from **(e-)bh(u)u̯ā-t* etc. The element *-ē-* of the suffix *-ēbā-* on the other hand is the remnant of *-ēns,* the participial suffix (Sommer, p. 522). Latin *agēbăm* is therefore nothing but I.-E. **agents (e-)bh(u)u̯ā-m*=Skt. *ájann ábhūvam,* if *ábhūvam* is accepted as a proper representative of the corresponding form of the *ā*-aorist which is unknown in Sanskrit. Lat. *ĕrăm* (from root *es-*: Skt. *as-)* is the only imperfect of the indicative in Latin which is not periphrastically constructed with *-bam* < **-bhu̯ām* (Sommer, § 345. 4).

Latin future too is an innovation. The *ē*-future of Latin (type : *agăm agēs agĕt*=Skt. *ájā(ni) ájāḥ ájāt)* is nothing but the Indo-European thematic subjunctive with long stem-vowel (see LIS., p. 157). Here the form *agăm* in the first person is in evident disagreement with Skt. **ájā,* the antiquity of which is guaranteed by Gr. *ágō* (subj.). To explain this anomaly of *agăm* (instead of **ago)* we have only to remember that Latin too has its own subjunctives, one

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characterised by the suffix *-ē-* immediately before the ending (e.g. *laudĕm laudēs laudĕt*) and the other by the suffix *-ā-* (e.g. *agăm agās agăt*). Of these two the first is of Indo-European antiquity: *laudētis* < **laudā-i̯ē-tes* at the side of indicative *laudātis* < *laudā-i̯ĕ-tes* cannot fail to remind us of Skt. *bhárātha* at the side of ind. *bháratha*. But the second *ā*-subjunctive is an Italo-Celtic innovation (Sommer, p. 514). The imperfect forms *eram erās erăt* etc. of the root *es-* "to be" are in fact to be derived from this *ā*-subjunctive. The anomalous form *agăm* of Latin *ē*-future is evidently nothing but a case of transfer from this *ā*-subjunctive. There is also a *b*-future in Latin, e.g. *laudābō laudābĭs* etc.; its origin however is still unknown (see Sommer, § 344).

Coming now to the verbal modes, the first thing we have to note is that the Indo-European subjunctive and optative have been woven up into one system which is called "subjunctive" in Latin grammar. Thus *sim sis sit* (=Skt. *syăm syāḥ syăt*), though optatives in origin, are regarded in Latin as subjunctives; so also *edim*=Skt. *adyăm*, etc. On the other hand, original subjunctives sometimes appear as future forms in Latin; thus Lat. fut. *ero eris erit*=Skt. subj. *ásā(ni) ásas(i) ásat(i)*. But the Indo-European paradigm of the subjunctive has also been essentially preserved—as subjunctive—in Latin (see Sommer, § 332), e.g. *laudĕm laudēs laudĕt* etc. Here we have to note that the thema-vowel of the subjunctive was changed from *o* (cf. Gr. *phérō phérōsi* etc.) to *ē* in all persons. Moreover, in first person singular, the secondary athematic ending *-m* has been generalised in Latin subjunctive. The *ā*-subjunctive (e.g. *agăm agās* etc.) has been already mentioned above.—As in Sanskrit, so in Latin too, the imperative had no special stem of its own.

Before discussing the personal endings of Latin verbal system a few words should be said about the voices. Perhaps from the very origin there were some verbs which could not be conjugated in both the voices active and middle. The verbs which were confined to the middle voice alone are called "deponentia"; such are, for instance, Lat. *sequitur*: Skt. *sácate*: Gr. *hépetai*, Lat. *moritur*: Skt. *mriyáte*, etc. The passive voice had originally no special flexion of its own; as a rule it was conjugated medially. In Latin the medial flexion of active verbs came to have a passive meaning; thus *hortatur* "he exhorts" is deponens, but *laudatur* "he is praised" is passive.

The Indo-European personal endings have on the whole been well preserved in Latin. In first person singular, the primary thematic ending *-ō* may be seen in *ferō* (=Gr. *phérō*) etc., and the secondary athematic ending, for instance, in Old Lat. *sie-m*=Skt. *syă-m*. The primary athematic ending *-mi* has been nowhere preserved, excepting perhaps in *sum*=Skt. *ás-mi*. In second person singular we have only *-s*, which may be the weakened form of the pri-

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mary ending *-si*. As for the ending in third person singular, *-ti* at first became *-d* and then changed to *-t* (Sommer, p. 489). The ending *-mus* in first person plural corresponds to Skt. *-mas*, but *-tis* in second person plural is an innovation of Latin. In third person plural the original primary ending has been preserved in an old archaic form—*tremonti*; in the historical period, however, both the primary and the secondary ending here is *-nt*.

As a syntactical substitute for the Indo European medio-passive, of which the endings *-tai, -sai* etc. have been best preserved in Greek and Indo-Iranian, the Italic dialects show a peculiar formation, of which the chief characteristic is an *r*. As mentioned above, the Italic dialects share these *r*-endings with the Celtic dialects. In third person plural, as we know already (LIS., pp. 163-4, IC. VII, p. 359), an *r*-ending appears also in Indo-Iranian. The origin of these *r*-endings are yet unknown. To give an example, the verb *agō* is conjugated in the medio-passive as follows :—*agŏr agĕrĭs agĭtur, agĭmur agĭmĭnī agŭntŭr*. The ending *-minī* among these *r*-endings is a problem by itself. It is supposed to be identical with the Greek infinitive-suffix *-menai* (Sommer, p. 495).

In perfect, Latin has generalised the medial endings. Thus *tutudī*, though in meaning identical with Skt. *tutóda*, agrees in form more with Skt. *tutudé* $<$ **tutudai*. The endings *-ĭstī -ĭstĭs* have been already discussed in connection with *is*-aorist. The oldest Latin perfect ending in third person singular was *-ed* as in the form *vhevhaked* of the Prenestian brooch; this is another instance of what we have already learnt before, namely that the Indo-European secondary ending *-t* at first became *-d* in Latin, though later it reverted to its old form through the attraction of the primary ending *-t* from *-ti*. The oldest Latin ending in perfect in third person plural was *-ēre* (see *tutudēre amavēre* etc.) corresponding to Skt. *-ur* and Avestan *-ərə* (IC., vol. VII, p. 359). Later, however, on the analogy of the present ending *-unt*, this *-ēre* was changed to *-ĕrunt* (Sommer, p. 578); we have thus two endings *-ēre* and *-ĕrunt* in third person plural.

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MISCELLANEA

(1)

THE POETRY OF FLIGHT IN KĀLIDĀSA

This article is concerned with the poetry of flight through the air as found in the works of Kālidāsa. It would be difficult to say why this theme is so prominent in Sanskrit literature ; for it is only putting the question one stage back to point to the influence of the Rāmāyaṇa. There are in fact few features of an airman's experience, and especially that in battle, which are not foreshadowed in the earlier epic. The arrival by air, the combat in the air (and with an invisible enemy, practically night fighting), the victim hurtling down to the ground, the journey from Southern India to Ayodhyā "in half a day," all these are scenes incidental to the appearance of Rāvaṇa's and other flying chariots. While Hanumān in flight offers a further range of opportunity for descriptive imagination, such as the stream of similes in the first Sarga of the Sundarakāṇḍa. It would be possible in many such passages to find the germ of ideas treated more elaborately by Kālidāsa. But further analysis of this subject in the Rāmāyaṇa, and development of its points of contact with Kālidāsa, are not possible in space devoted to the objective study of the topic as treated by Kālidāsa himself.

The whole theme of the first part of the Meghadūta centres, of course, around the Cloud's flight ; but the poet is here too preoccupied with the personification of the Cloud as the Great Lover to apply his imagination to the actual experience of flight through the sky in the manner that he does elsewhere. Descriptions of the river that appears so slender from a height,[1] with the simile from the markings on an elephant's back,[2] and the picture of the hill town seen from above as a woman nestling in a lover's lap[3] are, however, anticipations of this visualisation of flight. The former theme is developed in the Raghuvaṁśa, where the river seen from the air becomes the earth's pearl necklace,[4] and the glimpse of a pool[5] in the forest recalls the

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1. Meghadūta, I. 48.
2. Meghadūta, I. 19.
3. Meghadūta, I. 65.
4. Raghuvaṁśa, XIII. 48.
5. Raghuvaṁśa, XIV, 38.

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moon between clouds. Already in this kind of passage an intense descriptive imagination is beginning to visualise objects as they would be seen from the air in flight above them, and to heighten the impression through poetic imagery. This faculty again comes into play, with less recourse to imagery and more direct force of expression, in the picture of the earth "emerging" from the sea as the chariot flies inland from the coast, समुद्रात्सकानना निष्पततीव भूमिः[6], and in the more elaborate representation of the earth descending from the mountain peaks, tree trunks emerging from leaves, rivers broadening and the earth "thrown up" as the machine descends केनाप्युत्क्षिपतेव [7].

The passages so far cited represent attempts to convey the impression on the watcher in the air of objects seen below during flight, in a world which offered no tangible basis for it except an occasional view from the hills. Still more closely anticipative of experiences which are now a common-place of air-travel are passages describing phases of flight itself in some form or other of air-going vehicles. Such for instance are the war chariot Puṣpaka of Rāvaṇa or of Purūavas, the latter expressly conceived of with horses of the Pegasus breed, or the mere peaceful "passenger plane" आकाशयानम्[7a] of Urvaśī and Sānumati in the Stage Directions.

The joyous freedom of motion in altitude expressed in the verse, "Here on the pathway of the gods, it fares, or there on the clouds' or again on that of the birds ; see, wherever my heart desires, thither the machine proceeds[8]" might be the voice of any airman flying between 2,000 feet and the sub-stratosphere. The imaginative anticipation of speed in the air in the Vikramorvaśīya[9] is less successful, as the clouds breaking into dust are a mere transference from land travel divorced from reality. The descent of the chariot from the skies, with the crowd of expectant watchers gazing upwards and the detail of the steps for passengers to alight—अवातरत् मार्गेण भङ्गिविरचित-रफाटिकेन[10] — might be a scene at any aerodrome ; and it concludes with the air-chariot "taxi-ing" off, for what other translation than this

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6. Raghuvaṁśa, VII. 8.
7. Śakuntalā, VII. 8.
7a. But this perhaps more probably means a mechanical device to represent the Apsaras in flight *without* a vehicle.
8. Raghuvaṁśa, XIII. 19.
9. Vikramorvaśīya, I. 7.
10. Raghuvaṁśa, XIII. 68-69.

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new-coined word can one find for the Sanskrit स्तिमितजवेन पुष्पकेण ?

There are similar scenes in the play Śakuntalā. Duṣyanta the passenger enquires of Mātali the charioteer-airman as to his altitude, which is that of the higher Heaven somewhat fantastically described ;[11] and immediately afterwards follows the descent already alluded to, where the appearance of birds, lightning and water on the wheels (as one sees the water-drops forming on the wings of a plane in clouds) mark the transition to the lower level of the clouds.[12] And finally there is the inimitable picture of the "perfect landing" in the verse : "The wheels of the vehicle produce no sound, and no dust is seen to rise. For want of any feeling of contact with earth the chariot you bring to a stop was never perceived to land."[13] It is characteristic that the bumpy landing is made to convey the inevitable *Śṛṅgāra* element through touch as the result of the jolt.[14] (And the bump is not surprising for the whole of the first Act of the Vikramorvaśīya is staged with passengers arriving and leaving by air at a landing ground on the hill tops !)

The Rāmāyaṇa is particularly rich in descriptions of air-combat, for which Kālidāsa, less interested in the clash of superhuman hosts, has few parallels ; but his picture of heavenly beings in their chariots taking refuge from Rāvaṇa's machine in the clouds, मेघावरणतत्पराः, is strangely reminiscent of modern air-combat.[15] The description of the apes in crowded flight[16], व्योम्नि संबाधवर्तिभिः, is just such another phrase that might be applied as it stands to scenes over Britain in this war. While finally one may refer to the other side of the picture, the empty skies when Tāraka puts a stop to the air-traffic of the gods "from fear of his attack."[17]

Hitherto, with the exception of the flying hosts of the apes, we have been concerned only with the conception of a flying-vehicle, a Puṣpaka, or some other magic chariot, which (but for the want of wings) is in fact nothing but a heavier than air flying machine. There are a few other passages in Kālidāsa, notably in the Kumāra-

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11. Śakuntalā, VII. 6.
12. Śakuntalā, VII. 7.
13. Śakuntalā, VII. 10.
14. Vikramorvaśīya, I. 11.
15. Raghuvaṁśa, X. 46.
16. Raghuvaṁśa, XII. 67.
17. Kumārasambhavam, II. 45.

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sambhava, in which he applies his imagination to pictures of flying beings, such as the Ṛṣis descending, the Mothers in flight, and (if by Kālidāsa) Śiva flying about the world on his bull, with all the freedom of the owner of a private plane : तत्र तत्र संपतन्नप्रमेयगतिना ककुभ्मता[18] ।

While such passages are less directly relevant to my subject there is always about them some slight imaginative visualisation of the actual fact of flight.

Two main impressions which arise from this sketch are of the intensely practical imaginative power of Kālidāsa combined with the verbal facility and range of imagery which clothed this constructive imagination in poetic garb. The practical imagination may owe a good deal, but by no means all, to hints from the Rāmāyaṇa. The poetic imagery with which Kālidāsa invested the theme will be seen in some of the instances quoted above, but can only be alluded to rather than analysed within the scope of this article. These two faculties combined are applied to a theme anticipative of modern experience which happens to be scantily treated in the Greek and Roman classics, with the result that the poetry of flight in Sanskrit stands by itself in Indo-Aryan literature in relevance to this reality of the modern world.

C. W. GURNER.

18. Kumārasambhavam, VIII. 21.

(2)

FOUR VERSES OF AN ILLUSTRATED MS. OF THE AMARUŚATAKA.

In a paper in the *Journal of the Indian Society of Oriental Art*, Vol. VIII, 1940, p. 225 ff., Dr. Stella Kramrisch has published the translation of verses 56, 59, 60 and 66 of an illustrated MS. of the *Amaruśataka* in Oriya script, belonging to the Mayurbhanj State. The learned Doctor has not given us any indication as to the author of the translation ; but whoever he might be, his translation of the verses is not quite satisfactory. None of the verses has been correctly

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translated, and as regards one of them Dr. Kramrisch's interpretation of the illustration (based as it is on a wrong translation of the verse) could not but be misleading.

Verse 56 : कृतो दूरादेव स्मितमधुरमभ्युद्गमविधिः
शिरस्याज्ञा न्यस्ता प्रतिवचनमप्यालपसि च ।
न दृष्टिः शैथिल्यं भजत इति चेतो दहति मे
निगूढान्तःकोपे कठिनहृदये सम्प्रतिरियम् ॥

Translation : "From afar you have welcomed me with a sweet smile, you have suffered me to have my way : yet your look does not soften, thou hard-hearted woman. Ah, well you conceal your anger."

Here the vital part of the verse, the passage **इति चेतो दहति मे सम्प्रतिरियम्**, has been left untranslated, and **निगूढान्तःकोपे** in the vocative has been translated as an independent sentence.

Verse 59 : सन्त्येवात्र गृहे गृहे युवतयस्ताः पृच्छ गत्वाधुना
प्रेयांसः प्रणमन्ति किं तव पुनर्दासो यथा वर्त्तते ।
आत्मद्रोहिणि दुर्जनप्रलपितं कर्णे भृशं मा कृथा
श्छिन्नस्नेहरसा भवन्ति पुरुषा दुःखानुवृत्त्या यतः ॥

Translation : "Damsels are here in every house. Ask them : do their lovers pay homage to them, as your servant does ? Listen not to the forward. For thus you will wrong yourself, since men if too greatly afflicted lose their love."

Sanskritists will notice here the inaccuracy and incompleteness of the translation of such passages as **पृच्छ गत्वाधुना, दुःखानुवृत्त्या, आत्मद्रोहिणि** (in the vocative), etc., etc.

Verse 60 : स्मररसनदीपूरेणोढ़ाः पुनर्गुरुसेतुभि-
र्यदपि विधृतास्तिष्ठन्त्यारादपूर्णमनोरथाः ।
तदपि लिखितप्रख्यैरङ्गैः परस्परमुन्मुखा
नयननलिनीनालानीतं पिबन्ति रसं प्रियाः ॥

Translation : "Athirst with desire unslaked, swept away on the current of love, yet restrained by a strong dam, the lovers, eager for each other, their bodies motionless like pictures, drink love's essence from each other's lotus-eyes."

Here none of the passage like **स्मररसनदीपूरेणोढ़ाः, नयननलिनीनालानीतं रसं, लिखितप्रख्यैरङ्गैः, यदपि तदपि,** etc., has been correctly translated ; but

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the real meaning of the expression गुरुसेतुभिः has been missed altogether. There is no doubt that गुरुसेतुभिः (=गुरुजनरूपसेतुभिः cf शुश्रूषस्व गुरून्, आज्ञा गुरूणां ह्यविचारणीया, etc.) विधृताः here means "kept separated by the dams that are the elders (of the bride)." As regards the identification of the three female figures in the space separating the lovers (see Plate, fig. 3), the learned Doctor remarks, "Below this dam—whose nature they (i.e. the lovers) seem to discuss—sit three women"; "The group of the three women is a frequently repeated requisite in the illuminations of the manuscript. They do not occur in the verse and appear in the illustration only. . . . They are Sakhīs, and show the effects of the searchings of the hearts of the lovers ; their figures and gestures may be said to belong to the class of *anubhāvas,*" etc. etc. All this is good philosophy ; but the remarks certainly go against the language of the text. The word सेतु has been used in the verse in a figure of speech and no "dam" or arch of separation is actually to be found in the illustration, and the lovers cannot be supposed to be in a position to "discuss the nature of the dam." The structure represented in the illustration is apparently a portico or verandah with the seated female figures in the middle and the lovers standing between the pillars in its left and right ends. The seated figures again cannot be the meaningless and uncalled for *Sakhīs,* but no doubt indicate the elders mentioned in the verse. The idea of the elders standing in the way of the lovers is quite popular with the medieval Vaiṣṇava authors of Eastern India.

Verse 66 : अहं तेनाहूता किमपि कथयामीति विजने
समीपे चासीना सरलहृदयत्वादवहिता ।
ततः कर्णोपान्ते किमपि वदताधाय वदनं
गृहीत्वा धम्मिलं मम सखि निपीतोऽधररसः ॥

Translation : "He called me. In the simplicity of my heart, tender yet aflame, what could I say to him as we sat close together in a secluded spot ? While he whispered something into my ear, he breathed the fragnance of my cheek, he caught my braided hair and then, dear friend, he drank the nectar of my lips."

Here the first two *pādas* of the verse have been wholly misunderstood. The translation would be : "I was called to a secluded spot by him (my lover) saying, 'I'll tell you something'; and (being) attentive (to hear him) I was seated close to him owing to the simplicity of my heart (=without suspecting anything)."

D. C. Sircar.

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(3)

A NOTE ON THE DAULATABAD PLATES

In the above Plates of the western Cālukya king Jayasiṁha II, Jagadekamalla of Kalyāṇa, dated Śaka 938 and published as Hyderabad Archaeological series no.2, the following localities have been mentioned :—

(1) Pulugubhuṁkere : village on the northern bank of Bhīmarathī where the king had encamped while making the grant.

(2) Korralūru 12 : head of the 12 villages in which no. 1 was included.

(3) Arralūru 300 : head of the 300 villages in which no. 2 was included.

(4) Pārvvāḍa : the village from which the donee hailed.

(5) Nakarēgummalu : the village granted.

(6) Ātkūru 70 : head of the 70 villages in which no. 5 was situated.

(7) Savvi (bbi): the country in which lay no. 6.

(8) Muccuṁgurruki : village to the east of no. 5.

(9) Parruvadyā : a village to the south of no. 5.

(10) Koppaḍā : a village to the north of no. 5.

(11) Goṭṇamiṭṭā : a village to the north of no. 5.

About the identification of these localities, the editors of the plates under discussion have made the following remarks (p. 3) :—

'As regards the places mentioned in the record, the river Bhīmarathī is clearly the river Bhīma, the main tributary of Kṛṣṇā, joining the latter near Raichur, in H. H. the Nizam's Dominions. The place, however, where the king was encamped, which has an unusually lengthy name, cannot be identified with any place on the northern or left bank of the river, though the Korralūr and Arralūr of our plates might be one of many places named Kollūr and Allūr, found in the lower Bhīmā valley. We are unable to offer conjecture regarding the present equivalents of the other localities, though in our opinion, the Ātkūru seventy which comprised the village granted, cannot be the Ātkūr in the Mysore country'. It is evident from the above remarks that the editors could not identify any of the localities except Bhīmarathī though they suggested that 'the places must be looked for somewhere around Gulbarga, where names ending in Gurki are common.'

In the 'Sources of the Medieval History of the Dekkan', vol. II (p. 33), has been published a set of copper-plates, secured by the B.I.S. Mandala, Poona, from Parbhani, and dated in Śaka 888. It

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mentions the Sabbi 1000 country and seven villages included in it. Though Sabbi itself still remains to be identified, six out of the seven villages among which are included the one granted and the others specifying its boundaries, have been correctly identified and shown to lie between 18°, 15′ to 18°, 30′ latitude north and 78°, 45′ to 79° longitude east, in the Karimnagar district of the Hyderabad state.

Bearing this hint in mind, I tried to trace localities mentioned above and with the help of Mr. M. D. Gadgil (the then Ass. Chief Engineer P.W.D. in the Hyderabad state), I succeeded in identifying the localities nos. 5, 9, 10, 11. Their present day spellings are Nakarkomla, Pariwada, Koyada or Koheda and Gotlamitta, they lie between 18° to 18°, 15′ latitude north and 79° to 79°, 15′ longitude east, in the same Karimnagar district and are to the south-east of the villages from the Parbhani plates. Pārvvāḍa may be even identical with Parnuvadyā.

G. H. KHORE.

(4)

THE LENGTH OF THE YEAR IN HINDU ASTRONOMY

The length of the sidereal year has been adopted differently in different Siddhāntas. In Vedāṅga Jyotiṣa 366 days have been taken to a year and according to the modern Sūrya-Siddhānta there are 365·2 58756 days in one year. According to other Siddhāntas the length of the year is very near to that as in the Sūrya-Siddhānta. But the modern value as determined by European astronomers gives the year as consisting of 365·256361 days. In every case the Hindu determination of the length of the year is greater than the true value, the greatest difference being ·002395 days or 3·45 mins. in the case of Sūrya-Siddhānta, and the least being ·002076 days or 2·99 mins. in the case of Brahmagupta's work.

Now let us investigate the reasons which are responsible for such a determination of the length of the year that is in excess of the true

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value. The Hindus were generally silent about the method of observation by which they arrived at these results. However, we find a statement of Āryabhaṭa in his Āryabhaṭīyam (Gola 48) which may at least throw some light on the method of observation :—

क्षितिरवियोगादिनकृद् रवीन्दुयोगात् प्रसाधितश्चेन्दुः ।
शशितारायहयोगात्तथैव तारायहाः सर्वे ॥

"The number of civil days is to be ascertained from the conjunction of the Sun and the Earth etc." Here the term Earth may be taken to mean the horizon.

On this verse Prof. P. C. Sengupta has written a paper[1] in which he contends that the Hindus determined the length of the year from the observation of risings of a bright Star and the Sun at intervals of 365 and 366 days. But this argument does not appear to be sound enough, because stars cannot be properly observed when they rise or set. Hence a better method of determining the length of the year is to observe the meridian passage of the Sun and a Star.

Bhāskarācārya also supplies us with a method of observation in the Gaṇitādhyāya of his Siddhānta-Śiromaṇi for determining the length of the year :—

अथ समायां भूमावभीष्टकर्कटकेन त्रिज्यामिताकैः etc.

This method of Bhāskara is a very good one but the main defect of it is that it gives the tropical instead of the sidereal year. Bhāskara inadvertently had put in his result the sidereal value of the year.

Now it is probable that Hindu astronomers determined the sidereal year from observation of the meridian passage of the Sun and a Star. We may now see what result is obtained from such observations.

Let us take the Star Punarvasu (β-Geminorum or *Pollux)* which is of magnitude 1·2 and has a declination 28° 11′ north. The reason for selecting this star is that it is seen to cross the meridian just after sunset in the month of Caitra, i.e., near the time of the beginning of the Indian year.

On 31st March 1934, the star crossed the meridian 7h. 3m. 4·788s. after the sun had crossed it. Next year on the same day the difference of the two meridian passages is 7h. 4m. 1·182s. and it is diminishing by 3m. 37·86s. per day. The value of this difference becomes the same

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1. Bulletin of the Calcutta Mathematical Society, Vol. XII, No. 3.

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as in the previous year after a lapse of ·2588 of a day. Hence the length of the year comes out to be 365·2588 days or 3·5 mins. greater than the true value.

The length of the year obtainable from observation of any star may be found out from the tabulated annual variation of the R.A. of a star given in the Nautical Almanac as well as analytically from the trigonometrical relations of the Decli. and the R.A. and in either case the same result is obtained. There are many other stars which give the length in excess of the true length of the year.

When so many stars give the result in excess of the true value, it is then no wonder that the Hindus accepted the length of the year greater than the actual length.

The mathematical points referred to above in this note require fuller elucidation which I hope to give in a subsequent paper.

N. C. LAHIRI.

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REVIEWS

INDIA AND THE PACIFIC WORLD by Dr. Kalidas Nag; D.C. 8,° pp. XIV+294; Calcutta 1941.

Dr. Kalidas Nag is perhaps the most travelled man in India to-day. He has travelled literally "from China to Peru", not once, but several times,—always on cultural mission. To make India known to the world, and to make the world known to India—this has been the double task of his life. He is *naturally* the founder of the "Greater India Society." In his "Art and Archaeology Abroad" (1937) Dr. Nag gave a brief survey of practically all the culture centres of the world. Now in this volume Dr. Nag gives a similar but more detailed study on the Pacific World. Yet the number of problems attacked by Dr. Nag in this book is so large that the treatment of none of them could be exhaustive. But to give an exhaustive treatment of Pacific ethnology was neither his object. His book may be very properly called the *"Who's Who and What's What"* of Pacific Ethnology. As such it will surely prove to be a valuable guide to most of us blissfully ignorant of even the existence of the problems concerned. Oceania, Polynesia, Philippines, Malaysia, Indo-China, Sumatra, Java, China, Japan etc. have been dealt with in successive chapters from the view-points of ethnology and pre-historic archaeology, and the chief source-books and authors mentioned. The book itself, I must say, does not give a clear picture of any part of the vast time and area surveyed. Regarding the general problem of human relations it may be asked, whether or how far the similarities so eloquently emphasised by Dr. Nag are due to diffusion or parallel development. One of the greatest anthropologists of our age, Sir Arthur Keith, seems to have changed his former view in favour of parallel development. In a speech reported in *The Statesman* of the 23rd August, 1936, Sir Arthur said that anthropologists were wrong to think that all modern races had evolved from a common mid-Pleistocene ancestral stock; modern discoveries prove that already at the beginning of the Pleistocene Period some 500,000 years ago, the ancestors of the Mongol, of the Australian and of the Negro were already in occupation of the continental areas now inhabited by their descendants. This is certainly not what Sir Arthur said in his "Descent of Man". According to his new theory, Sinanthropus of China was already a Mongolian and Pithecanthropus of Java already an Australian. It seems that the physical particularism of modern races is very deep-seated. Can we now remain content solely with a diffusionist theory of culture?

BATAKRISHNA GHOSH.

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KAṂSAVAHO of Rāma Pāṇivāda, A Prākrit Poem in Classical Style, Text and Chāyā critically edited for the first time with various Readings, Introduction, Translation, Notes, etc. by Dr. A. N. Upadhye; pp. 1+213; Bombay 1940.

Prof. Upadhye is apparently not an idle man. He is pouring forth books and essays in a ceaseless stream. Yet none of his publications is any the worse for it. The present text is of no outstanding merit or importance, and yet Dr. Upadhye has lavished on it unstinted labour and meticulous care. He has collected all available information about the author (born in 1707 A.D.) and discussed also his other known works. In this connection he mentions an unpublished Vṛtti of Rāma Pāṇivāda on the *Prākṛta-prakāśa* of Vararuci. This is important—not only as showing which Prākrit the author of the *Kaṁsavaho* had in view but also from the view-point of Vararuci's grammar. The late lamented Madame Nitti-Dolci declared on convincing grounds that "quand on parle de Vararuci, il faut avoir en vue exclusivement les neuf premiers livres de l'édition Bhāmaha-Cowell et se rappeler que le cinquième et le sixième n'en forment qu'un seul" *(Les Grammairiens Prakrits,* p. 20). Dr. Upadhye says about Pāṇivāda's Vṛtti : "the fifth chapter covers chaps. 5 and 6 of Cowell's edition. Our Ms. has in all only eight chapters which cover the matter of the nine chapters of Cowell's text" (p. xxiii). Pāṇivāda's Vṛtti, for the information about which we are indebted to Dr. Upadhye, thus fully vindicates the bold assertion of Madame Nitti-Dolci. It is to be expected that the author who wrote a commentary only on the genuine portion of Vararuci's grammar should write his Kāvya in the particular dialect described in that portion, usually (but wrongly, as Dr. Manomohan Ghosh has shown) called Māhārāṣṭrī. And this is actually the case with Pāṇivāda, for "our author closely follows Vararuci's grammar and his dialect fundamentally agrees with the one discussed in the first nine chapters of *Prākṛta-prakāśa*" (p. xliv).—The manuscript-material at the disposal of Dr. Upadhye was meagre, and, therefore, necessary emendations have been many. But on one point Dr. Upadhye seems to have passed the limit of necessity. Elision of initial consonant, though unexpected, does actually take place even in the oldest phase of Prākrit, and, analogy being a recognised principle of grammar, we should not regard non-initial forms like *iraṁ (=ciram)* transferred to initial position as *ungrammatical.* I therefore do not consider it necessary to emend *iraṁ* to *ciraṁ* (I. 12).—For so late an author as Pāṇivāda, composing in Prākrit was very probably nothing but mentally translating from Sanskrit. And Dr. Upadhye has amply demonstrated that Pāṇivāda took as his model not any Prākrit Kāvya like *Gaüḍavaho* but Māgha's *Śiśupālavadha.* The Glossary and the Translation will be very helpful to students. In the Notes Dr. Upadhye has discussed all critical questions,

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both literary and linguistic. It would have been more convenient for readers if the Sanskrit Chāyā had been given along with the text and not in a separate section.

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BULLETIN DE L'ÉCOLE FRANCAISE D'EXTRÊME-ORIENT, Tome XL. Fasc. 2 ; Hanoi 1941.

Without meaning to suggest that any fascicle of the famous *Bulletin* of the French School of the Far East ever offered anything that is not of intrinsic value, it may be said without fear of contradiction that the present fascicle is particularly rich in contents. The first article (pp. 239 313) is on Śrī Vijaya by Prof. K. A. Nilakanta Sastri. In beautifully lucid style Prof. Sastri has presented here not only all that has been ascertained about the history and culture of the forgotten empire of Śrī Vijaya, but also the views—often conflicting—of the French, Dutch and Indian scholars who have worked on the subject. Yet, the material available for the reconstruction of the history of Śrī Vijaya is so scanty that we do not yet know for certain its original location. Even the account of I-tsing, who visited Śrī Vijaya, is so confused that the authorities are divided over its location between Sumatra (particularly Coedès who was the first to show in 1918 that there was an independent kingdom of that name) and the Malay Peninsula (particularly R. C. Majumdar). Moreover Pelliot had suggested that the original location of Śrī Vijaya was in Java. But that was in 1904, long before Śrī Vijaya studies were established on a firm footing by Coedès. Prof. Sastri, after full deliberation, has accepted the theory of Coedès and located Śrī Vijaya in Sumatra. The empire spread from there, in his opinion, in the Malay Peninsula. In the seventh century Śrī Vijaya had become such an important centre of culture that I-tsing visited it three times, and on one occasion spent six months there studying *śabdavidyā*. Recommending the place to fellow pilgrims from China I-tsing said that they would do well to spend a year or two in Śrī Vijaya before proceeding to India. Regarding the relation between Śrī Vijaya and the Śailendras Prof. Sastri says: "Śrī Vijaya continued to maintain its imperial position commanding both sides of the Strait of Malakka. Though a part of Western Java might have formed part of the empire of Śrī Vijaya, there arose the kingdom of the Śailendra *Mahārājas* of central Java" (p. 268). From the ninth century, Arab historians begin to mention Zābag and Sribuza. Prof. Sastri concludes that Zābag is a wider term embracing the entire archipelago and possibly also the Malay peninsula, while Sribuza, doubtless the Arab form of Śrī Vijaya, is applied to the

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most important island of Zābag, and must therefore be taken to stand for Sumatra (p. 270). The Nālandā copper-plate of Devapāla's reign proves that in the tenth century Bālaputra of Śrī Vijaya endowed a Buddhist monastery at that place (p. 277). The chief document about Śrī Vijaya in the eleventh century is the inscription of Rājendra Cola (A.D. 1025) who undertook an expedition against it. The empire of Śrī Vijaya came to an end in the thirteenth century when it was attacked by Java in the island (Sumatra) and by Siam in the Peninsula (Kaṭāha=Kedah). Whatever remained of it was destroyed in the following century by Chinese pirates.

M. Coedès continues in this volume his *Etudes cambodgiennes* (Nos. XXXIII–XXXV). By far the most important of the three studies published by him in this volume is the *Etude* no. XXXIII, which bears the modest title "La destination funéraire des grands monuments Khmèrs" but actually deals with many aspects of the Devarāja cult, and gives at the end author's happy solution of the much discussed problem whether the Aṅkor Vat is a tomb or a temple: agreeing with P. Mus author says that it is both. The crux of the problem, as formulated by Przyluski, is "whether the rites performed were addressed to the remains of a mortal or to the relics of a god." Coedès replies that the essence of royalty was incorporated in a statue and perpetuated in a cult making "de la statue d'un mort une image vivante" (p. 326). The ashes of the dead monarch deposited under his statue erected during his lifetime were the chief instrument by means of which this transformation was effected. The Devarāja cult is doubtless based on purely Indian conceptions, but its local colour and line of evolution was largely determined by the pre-Indian atavism of the Khmèrs (p. 341).—Etude no. XXXIV gives a short archaeological survey of fifteen of the one hundred and two hospitals founded by Jayavarman VII, mentioned in the inscription of Tà Prohm.—Etude no. XXXV gives a short account of the rest-houses with fire *(vahnigṛhāṇi)* built by Jayavarman VII along the main routes of his kingdom. The purpose of these Vahnigṛhas seems to have been also to indicate the road.

The remaining articles in the volume can but be mentioned in this short review. Maurice Glaize in his "Essai sur la connaissance de Nak Pan après anastylose" gives in language rather too eloquent for archaeology the story of the restoration of the temple of that name. The symbolism of the whole group is that of the lake Anavatapta in the Himalayan region (p. 359). In the article on the Gopura of Práḥ Pàlilai the same scholar has elaborated in the light of further excavations the study on the same temple published in BEFEO., vol. XXII, pp. 101-134. The third article of Maurice Glaize describes the results of the clearing of Phnoṁ Kròm. The subject had been exhaustively dealt with twenty years ago by Parmentier, but much new material has come to light since—which M. Glaize has here thoroughly discussed.—Victor Goloubew in his essay on the metal drum of Hoang-Ha has discussed

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many minute problems of ethnology and pre-historic archaeology, and drawn into comparison similar drums discovered before,—relics of the bronze age of the far east.—In the light of Buddhistic sculptures discovered in Luang Prabang, M. Lévy in his beautifully illustrated article has shown that Buddhism was introduced in this region in the eleventh or the twelfth century, though literary tradition places this event in the fourteenth century.—In his "Notes d' architecture birmane," M. Henri Marchal has studied two small edifices: one situated at Hmazwa, eight kilometres from the present city of Prome, and the other, a small temple of Pagan, which is little known, but presents features representative of the age to which it belongs.—Jouveau-Dubreuil in his brief but highly interesting note (pp. 448-50) has shown that Pondichery is nothing but the *Podoukē* of Ptolemy, and that a Roman glass-factory, probably worked by Indian labourers, was situated there about the beginning of the Christian era.

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THE RĀMĀYAṆA POLITY by Miss P. C. Dharma, M.A., D.Litt.; pp. IX+100; printed at the Madras Law Journal Press, Madras 1941; with a foreword by the Rt. Hon'ble V. S. Srinivasa Sastri.

This is a thesis approved for the degree of Doctor of Letters by the University of Madras. Miss Dharma has collected in this slim volume much material, the value of which however cannot be said to have been enhanced in any way by her evident effort to read "constitutional" history into quite harmless texts. It is difficult to see how she could permit herself the liberty of using ultra-modern political terms such as "cabinet", "prime minister" etc. Regarding the "king-makers," I fully endorse the view expressed by the Rt. Hon'ble V. S. Srinivasa Sastri in his forword: everything seems to show that the term signified only "those who performed certain duties at the coronation." I am terrified to learn that the good old Sabhā "corresponded to the present day Parliament or Legislative Assembly" (p. 35). Miss Dharma does not make any difference between *mantrin* and *amātya;* but I would like to draw her attention to Rāmavarman's comments on Rām. I. 7. 4: *amātyāḥ deśādikāryanirvāhakāḥ, mantriṇo vyavahāradraṣṭāra iti bhedaḥ.*—I cannot say that the conception or the execution of the work is satisfying to me. I wish I could conscientiously commend the book to serious students.

BATAKRISHNA GHOSH.

ṚGVEDA SAṂHITĀ edited by Śrīpādaśarmā on behalf of the Svādhyāyamaṇḍala of Aundh with the help of Mahārāṣṭrian Vedic scholars on the basis of numerous manuscripts; pp. 72+978; price Rs. 5; Aundh 1940.

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I cannot admire highly enough the noble efforts of the Svādhyāya-maṇḍala of Aundh to revive and popularise Vedic studies in India. Its object is to bring out in cheap and correct editions all the texts of the Vedic literature. The Sāma-veda and the Atharva-veda of the Aundh edition have been already noticed in "Indian Culture." In the splendid edition of the Ṛgveda however, that we have before us now, the Svādhyāya-maṇḍala has decidedly excelled its own previous achievements. Besides the whole text of the Ṛksaṁhitā we have here, in the introductory part, the complete Ṛṣidevatā-sūcī, the Devatā-sūcī, the Ṛṣi-sūcī, and the Anuvākānukramaṇī etc. After the Saṁhitā-text we have in this volume firstly the Khila-sūktas which differ considerably in text from the Khilas as published by Scheftelowitz. Thus the first pāda of the first verse of the first Khila-sūkta in the text of Scheftelowitz reads समैक्षिष्योर्ध्वमहस, but in the edition under review (p. 769) it is: शनैश्चिदद्य सूर्येण। The variant readings given in both editions do help us to reduce the difference between the two versions, but cannot fully reconcile them. It seems to me that the editors of the Svādhyāya-maṇḍala were too much under the influence of Aufrecht's text of the Khilas.—Then comes the whole gamut of the eight Vikṛtis, with due illustrations; then the whole text of Kātyāyana's Ṛgveda-sarvānukramaṇī and Śaunaka's Anuvākānukramaṇī. The whole volume ends with an index of verses.

As for the main text of the Ṛksaṁhitā, it can be unhesitatingly said that it is absolutely dependable. Perhaps it is better than even the text of the Poona edition which is certainly superior to all previous editions. The editor has pointed out in his foreword that the words *spandra* (e.g. V. 52. 8) and *mathrā* (I. 181. 5) were wrongly read by Max Müller as *syandra* and *mathnā*. Now the Poona edition too—to judge by the volumes I have purchased—had originally printed *syandra* and *mathnā;* necessary corrections however were made afterwards *by hand!*

In criticism of this edition I must again regret the absence of the Pada-pāṭha. The attempt to separate each pāda in the written text cannot be called happy. If the indications of the editor are literally followed by a reciter, he will land himself in many anomalies. Thus according to editor's indication the first pāda of I. 1.6 ends with *tva* and not *tvam,* and reciters using this edition may be actually tempted to allow pause after *tva!* On the other hand, in many cases, where direction is really necessary, the editor has failed to give it, though it was within his power to do so. For instance, it is not at all clear from editor's indications that I. 2.1 has to be recited *vāyav ā yāhi darśata ime somā* etc.; he has nowhere suggested that the abhinihita *a* has to be restored in recitation; nor does he show where *iyādipūraṇa* is necessary, nor where a vowel has dissyllabic value, etc. etc. Correct recitation of the Ṛksaṁhitā is not possible without taking these things into consideration.

BATAKRISHNA GHOSH.

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PRE-BUDDHIST INDIA—A Political, Administrative, Economic, Social and Georgaphical Survey of Ancient India based mainly on the Jātaka Stories—By Mr. Ratilal N. Mehta, M.A., with Foreword by Rev. Fr. H. Heras, s.J., Director of the Indian Historical Research Society, Bombay, Examiner Press, Bombay, 1939, Royal 8 vo :—

This is just another remarkable publication of a piece of research-work based upon the Pali Jātakas. But none of the previous works are so comprehensive and analytical as Mr. Mehta's dissertation. It is justly remarked by Rev. Father Heras that "his views are always impartial, his method is faultless, his criticism well-founded and precise." Of all things, the most noteworthy is his fairness to all previous researchers and writers. A work which is so informative and characterised throughout by so dispassionate a scientific spirit cannot but be a welcome addition to our present stock of knowledge of Ancient India, of which we are all proud, and cannot but serve as a notable book of reference. His method of treatment and mode of presentation leave nothing to be desired by way of clearness and precision. But the great question which we have still to settle is—how far do the Jātakas give us a faithful picture of the life of pre-Buddhist India? In other words, is the title chosen and adopted by Mr. Mehta for his otherwise excellent work at all justified? Those who have critically examined the form and contents of the Pali Jātakas will certainly shrug their shoulders in accepting the bold proposition that all that the Jātakas tell us or have to tell us pertain to pre-Buddhistic times. The Jātakas developed through centuries and reached their final shape as late as the 5th century A.D.. The writings of Buddhaghosa who flourished in the 5th or 4th century A.D. presuppose the whole collection of 550 (in round number) Birth-stories that were originally in Singhalese, interspered with the texts in Pali. The number multiplied and varied, from four or ten to five hundred or five hundred and fifty. The *gāthās* forming the nuclei of the expanded stories are indeed full of archaisms and may be very old, and yet one cannot help having this impression that they themselves were manipulated to suit the Buddhist idea of morality and royal polity. There is again a chronological distinction between the old *gāthās* and those passing under the name of *Abhisambuddha.* The remote past and subsequent past are inextricately and hopelessly intermixed. Until the chronological strata and territorial bearings of the Jātakas are satisfactorily fixed, one will try but in vain to make us believe in the Gospel truth of the Jātakas concerning all things about pre-Buddhist India. Barring this main defect, the young author may be congratulated on the production of a marvellous work doing credit not only to him but to his *Alma Mater,* the University of Bombay as well.

B. M. Barua.

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IMPORTANT CONTRIBUTIONS TO ORIENTAL JOURNALS

Annals of the Bhandarkar Oriental Research Institute, Vol. XXII, Parts I-II, 1941.

The Kālikā-Purāṇa *by* R. C.Hazra.—"The present *Kālikā-p.*, which certainly came to Bengal from Kāmarūpa either in the thirteenth or in the fourteenth century A.D., is a work quite different from the earlier *Kālikā-p.* mentioned in the lists of eighteen Upapurāṇas and drawn upon by Nānyadeva, Lakṣmīdhara and others."

The Role of the Courtezan in the Early History of Indian Painting *by* P. K. Gode.—Author records in this paper "some references which go to prove that painting was associated with the daily life of the Courtezans in the early history of Indian painting."

Jagaddhara's indebtedness to Harihara, an Ancient Commentator of the Mālatī-mādhava *by* N. A. Gore.

Rāvaṇa *by* P. R. Chidambara Iyer.—A Study—and a curious one too—in the light of the New Psychology.

Viśveśvarasmṛtiḥ *by* Vishveshvarnath Reu.—Mr. Reu gives here the introductory part of a Smṛti-digest adapted to the needs of the present day which he has himself prepared and which he proposes to call after his own name *"nirvañcanam arvācīnatāṁ pradarśayitum eva."*

Ambivle Cave Inscriptions *by* Moreshwar G. Dikshit.—Five very short inscriptions (two of them Nos. 1069 and 1070 of Lüders) are published here for the first time.

When and Where was Ferishta Born? *by* Shaikh Chand Husain.—Ferishta originally belonged to Astrābād, but his father came to Ahmadnagar about 1553 A.D., and there the famous historian was born about 1570 A.D.

Indo-Muslim Architecture *by* M. A. Chaghtai.—"The arrangement of the underground sepulchral vault in the Taj at Agra is the same as that in the Gour-i-Amir at Samarkand."

Some Ancient Indian Tribes *by* B. C. Law.—Author discusses the Anūpas, Kīkaṭas, Tukhāras, Kukuras and the Ugras.

The Āndhra Mahābhāratamu *by* N. C. Narasimha Acharya.—Author discusses the Telugu translations of the Great Epic.

Hāsya as a Rasa in Sanskrit Rhetoric and Literature *by* Har Dutt Sarma.—Thorough treatment of the subject.

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A Washington Manuscript *by* P. V. Bapat.—New light thrown on the fragmentary Tibetan version of the Vimuktimārga.

Commentary by Devabodha on the Ādiparvan of the Mahābhārata *edited by* R. N. Dandekar (pp. 1-32, as supplement).

Bhāratīya Vidyā, Vol. II, part II, May 1941.

The Date of the Bhāgavata *by* Durgashankar K. Shastri.—Author has shown that the Bh. "evidently" alludes to the Ālwārs, is influenced by Śāṅkara philosophy and indebted to Māgha, and concludes that "it was composed most probably in the first half of the ninth century."

The Hindu Social Philosophy *by* Pandharinath Valavalkar.—Reflections on Varṇāśramadharma.

Vālmīki-sūtra : a Myth *by* A. N. Upadhye.—Many views of the late Madame Nitti-Dolci have also been criticised. "The so-called sūtras of Vālmīki are really the sūtras of Trivikrama."

Purāṇic Cosmogony *by* A. D. Pusalker.—"Cosmogony in the *Purāṇas* in the form in which they have come down to us is on the whole a later development of the systems as presented in the *Mahābhārata* and the *Manusmṛti*."

Date of the Sūktiratnāvali of Vaidyanātha Tatsat—before A.D. 1698 *by* P. K. Gode.

Is the Upaniṣadic View Agnostic? *by* S. K. Saksena.—"The entire trend of the Upaniṣadic and the Sāṅkhya-Yoga thought has been unmistakably to assert the pure 'sciousness' or 'Śuddhabodhasvarūpa' of the pure light of the ultimate spiritual reality of 'Puruṣa' or the Ātman."

Ājīvika Sect—A New Interpretation *by* A. S. Gopani.—Thorough examination of the known tenets of this sect. To be continued.

Kuvalayamāla—II *by* Jinavijayaji Suri.—Continued from Bhār. Vi. Vol. II, part I.

Some Problems of Historical Linguistics in Indo-Aryan *by* S. M. Katre.—Synopsis of six lectures (Wilson Philological Lectures, delivered in February and March, 1941).

The Pāṇinian School and the Prātiśākhyas *by* K. Madhava Krishna Sarma.—Author proposes to show that though the Vārttikakāra could not have been the author of the Vājasaneyi Prātiśākhya, yet he should have belonged to the Vājasaneyi Śākhā.

Bharadvājas' Hymns to Agni *by* Manilal Patel.—Translation with notes of Ṛgveda VI. 1—4.

Epigraphia Indica, Vol. XXVI, Parts I-II, January—April, 1941.

India Office Plate of Lakshmanasena *by* H. N. Randle.—This is "The Lost Bhowal Copper-Plate of Lakṣmaṇa Sena Deva of Bengal" to which atten-

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tion was drawn by Dr. N. K. Bhattasali (IHQ. III, pp. 89-96) in 1927, and which Dr. Randle in 1930 "turned out from a safe in the India Office Library." This plate (c. 1197 A.D.) closely resembles the Mādhāinagar plate. Randle's readings have in many cases been corrected and improved by the editor of Ep. Ind.

Rajamundry Museum Plates of Telugu Choda Annadeva *by* N. Venkataramanayya.—Date 1416 A.D. Author discusses in detail the political history of South India in the 15th century.

Rajim Stone Inscription of the Nala King Vilāsatunga *by* V. V. Mirashi.—"It may not be wrong to assign the present record to about 700 A.D." Author has also discussed the history of Mahākosala up to the end of the 9th century.

Venkatapur Inscription of Amoghavarsha [Śaka 828] *by* R. S. Panchamukhi.

Two Eastern Ganga Copper-plate from Sudava *by* R. K. Ghoshal.—The first is of Devendravarman, son of Guṇārṇava (Gaṅga year 184), and the second of Anantavarman, son of Devendravarman (Gaṅga year 204).

Kamauli Plate of Govindachandra, King of Kanauj; V.S. 1184 *by* R. K. Ghoshal.—This inscription does not furnish any facts that are not already known.

Baripada Museum Plate of Devanandadeva *by* Krishna Chandra Panigrahi.—Undated, but probably belonging to 899 A.D. The inscription records the grant of a village to a member of the Kāṇva Śākhā of the White Yajurveda originally hailing from Puṇḍravardhana.

Bijholi Rock Inscription of Chahamana Somesvara: V.S. 1226 *by* Akshaya Keerty Vyās.—It records the erection of a temple to Pārśvanātha by a Digambara Jain named Lolāka. The chronology of the Cāhamāna dynasty as given in the Pṛthvīrāja-vijaya is supported by this inscription.

Ephigraphia Indo-Moslemica, 1937–38.

Inscription of Ghiyathu'd-Din Tughluq from Asrawa Khurd near Allahabad *by* G. Yazdani.

Three Persian inscriptions of Allāh Vardī Khān Turkman from the ancient hill forts in the Nasik District *by* M. Moneer.

The Navagram Inscription of Sultān Nuṣrat Shāh of Bengal *by* Maulavi Shamsuddin Ahmad.

An inscription of Alau'd-Dīn Khaljī recently discovered at Muttra *by* Zafar Hasan.

The Indian Historical Quarterly, Vol. XVII, no. 2, June 1941.

Studies in Early Buddhist Historiography *by* U. N. Ghoshal.—Author shows how gradually arose what may be called "the standard biography of the Buddha."

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Relation between the two Aspects of Brahman *by* P. M. Modi.—Author has tried to show that the germ of the distinction between the Puruṣa and the Akṣara in the Gītā is already known to the earlier metrical Upaniṣads.

Identification of Parvataka and Porus *by* H. C. Seth.—Author has tried to show that Parvataka of *Mudrārākṣasa* in the same person as Porus.

The Position of Wives other than the first in the Vedic Ritual *by* J. B. Caudhuri.—Author has collected an immense amount of relevant material.

Buddhist Evidence for the Early Existence of Drama *by* O. H. de A. Wijesekera.

Two Inscriptions of Gopāla III of Bengal *by* N. K. Bhattasali.—Author has suggested very plausible and ingenious corrections on the basis of which he has constructed a revised chronology of the Pāla Kings. Of fundamental importance for the history of Bengal.

The Eight Great Caityas and their Cult *by* P. C. Bagchi.—Based chiefly on Tibetan and Chinese sources.

The Valid Forms in "Bhāṣā" *by* Louis Renou.—Author contends that the Aṣṭādhyāyī is primarily a grammar of *bhāṣa,* but not of that alone; "Pāṇini mixes in a sort of bold syncretism the chandas and the bhāṣā; isolating the chandas only where there are particularities decidedly abolished or (more often) licences not lending themselves to a defined doctrine (whence the frequent usage of the *bahulam);* isolating the bhāṣā there only where the exigencies of the system led to upset a sū. of the chandas."

On a Stanza of the Mudrārākṣasa *by* R. Rangachar.—Author suggests that the word *budhayoga* in Stanza 6 of the first Act should be taken to mean conjunction of *Budha* with Candra.

Govinda Bhaṭṭa the real name of Akbarīya Kālidāsa *by* V. Raghavan.

Journal of the American Oriental Society, Vol. 61, *no.* 2, *June* 1941.

The Rigvedic Equivalent for Hell *by* W. Norman Brown.—"The place of hell is contrasted with the ordered universe." "Aditi, personification of Benevolent Boundlessness, symbolised one [world]; Nirṛti, personification of Malevolence and Destruction, symbolized the other."

On Avestan *š* etc. *by* Louis H. Gray.—Very important for Iranic philology. Author gives a new explanation of Avestan *š*=*rt*. According to Bartholomae and others, *rt* normally became *š* in Avestan under the accent. Gray here suggests that original *rt* changed to *rr*—which in Pārsīk script looked like *š;* the mysterious mutation of *rt* to *š*—to appear again as *rd* (or *l*)—is mere appearance.

Journal of the Benares Hindu University, Vol. V, no. 3.

The Family of Caṣṭana (their coinage and history re-examined) *by* Jaya-

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chandra Vidyalankar.—Author shows that there is striking confirmation of Jayaswal's reconstructed Indian History from 180 A.C. to 350 A.C. in the coinage of the Kṣatrapas.

Sarnath *by* Rama Shankar Tripathi.—General historical survey and a practical guide for visitors.

Journal of the Bihar and Orissa Research Society, Vol. XXVII, part II.

Sources of Indian History *by* Lassen.—Translated from German by A. Banerji-Sastri.

Nawab Munir-ud-Dowla, a Minister of Shah Alam *by* S. H. Askari.

A Tibetan Account of Bengal (contd. from JBORS., Dec. 1940) *by* S. C. Sarkar.

Journal of Indian History, Vol. XX, pt. 2.

Nāga Worship in Kushāṇa Period *by* Baij Nath Puri.

The English in Madras and Mir Jumla *by* Jagadish Narayan Sarkar.—Based on English Factory records.

The Transfer of Capital from Delhi to Daulatabad *by* N. B. Roy.—An account of the strange experiment by Muhammad bin Tughluq.

Peshwa Madhav Rao I and the Nizam *by* Anil Chandra Banerjee.

Journal of the Greater India Society, Vol. VIII, no. 2.

The Shadow Theatre in Greater India and in Greece *by* Jean Przyluski.

Political Relations of Tibet with India *by* R. C. Majumdar.

Varuṇa *by* Batakrishna Ghosh.—A religio-philological study.

Glimpses into the Hindu-Javanese Society of Central Java *by* Himansu Bhusan Sarkar.

Journal of the Polynesian Society, Vol. 50, No. 2.

Chants and Love Songs of the Marquesas Islands, French Oceania *by* Samuel H. Elbert.—There is real poetry in some of the songs.

Journal of the Royal Asiatic Society of Bengal, Letters, Vol. VII, 1941, *No. 1.*

The Life and Works of Amir Hasan Dihlavi *by* M. I. Borah.

Futūḥāt-i-Fīrūzshāhī *by* N. B. Roy.—A revised edition of this autobiographical text by Firūzshāh Tughluq (1351–1388 A.D.).

The Solar Eclipse in the Ṛgveda and the Date of Atri *by* P. C. Sengupta. Author concludes that Atri lived about 4000 B.C.

New Indian Antiquary, Vol. IV, nos. 2–4.

On the Study and Metrology of Silver Punch-mark Coins *by* D. D. Kosambi. Concluded in no. 2. Author himself admits that his article is unreadable.

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The Position of the Daughter in the Vedic Ritual *by* J. B. Chaudhuri.—Author does not believe that exposition of baby girls was practised by ancient Indians and concludes with the saying *"putreṇa duhitā samā."*

The Buddhistic and the Advaita View-points *by* P. T. Raju.—Author seems to suggest that in spite of great outward similarity the two systems differed vitally in general outlook.

The East India Company's Cinnamon Trade (1600--1661) *by* J. C. De.

Anūpasiṁha and Some of his Favourite Scholars *by* E. P. Radhakrishnan. —Anūpasiṁha ruled in Bikaner in the latter half of the 17th century.

Some Notes on the History of the Fig from Foreign and Indian Sources *by* P. K. Gode.

The Poona Orientalist, Vol. V, Nos. 1--4.

Bhartṛhari not a Buddhist *by* Madhava Krishna Sarma.—"Kāśmirian authors are unanimous in regarding Bh. as a great representative of the Pre-Śaṅkara phase of Advaitic thought."

Dates of the Works of Kāyastha Cāmuṇḍa *by* P. K. Gode.—End of 15th century.

Abhinavagītagovinda *by* E. P. Radhakrishnan.—It is shown that the real author of this work was Divākara, but he passed it off in the name of his patron, the second king of the Gajapati dynasty of Orissa.

Kumārila's Contribution to Philosophy and Mythology *by* H. G. Narahari. —Author has pointed out some interesting passages in Kumārila in which the latter condemns attempts to derive non-Aryan words from Sanskrit roots. Some of Kumārila's mythological speculations have also been discussed.

The Ancestry and Caste of Candragupta Maurya according to the Mudrārākṣasa *by* Dasaratha Sarma.—Against H. C. Seth author maintains that *vṛṣala* does mean *śūdra.*

Studies in Pāṇini (Part II) *by* V. N. Gokhale.—Subjective speculations without much scientific value.

Kātyāyana *by* K. Madhava Krishna Sarma.—One of the best articles ever written on the Vārttikakāra. Should not be missed by students of Pāṇinean grammar. [Continuation in *Poona Orientalist* Vol. VI, pp. 74 ff.]

Viśveśvarasmṛti *by* Viśveśvaranātha Reu.—The first chapter of the Smṛti compiled by Mr. Reu.

Rohita: A Sure Test of the Vedic Eclipse-cycle *by* R. Shama Sastry.—Nothing can be more unsure.

Yogavāsiṣṭha on the Origin of Indian Philosophy *by* P. C. Divanji.

The Contemporaneity of Candragupta and Kaniṣka *by* Dhirendra Nath Mookerjee.—A desperate attempt to make the impossible seem possible.

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The Jyotirvidābharaṇa and the Nine Jewels *by* K. Madhava Krishna Sarma.—Chiefly a criticism of Dikshit (Ind. Culture, Vol. VI, pp. 191 ff.).

A Note on a few Works entitled Tarkadīpikā *by* E. P. Radhakrishnan.

The Poona Orientalist, Vol. VI, Nos. 1 and 2.

Eclipse-code of Ṛgvedic Āryans *by* M. Raja Rao.—Subjective. Fatal result of trying to read astronomy in mythology.

Similar Social and Legal Institutions in Ancient India and in Ancient Mexico *by* Ludwik Sternbach.

The Pañcapādikā Literature *by* E. P. Radhakrishnan.—Excellent survey of the literature beginning with Padmapāda's Commentary on Śāṅkara-bhāṣya. Most of the works of this school are still in manuscript.

Importance of Accent in the Vedas *by* S. R. Sehgal.—Though not systematic and correct in every respect, the article contains some good suggestions.

Date of Dhaneśvara's Commentary on Bāṇa's Caṇḍīśataka *by* P. K. Gode.—Correct date is A.D. 1309. Author also points out that Aufrecht mistook this author for his namesake who wrote a commentary on the Anargha-rāghava.

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If the Observer is at one of the terrestrial Poles *(merus)*, his latitude and therefore the altitude of the North Pole is 90 degrees, and the Poles coincide with the Zenith and the Nadir, the Celestial Equator with the Horizon, and thus every daily circle being parallel to the Equator is parallel to the Horizon, and half the hemisphere is always visible (because there is no setting or rising) and the other half is always invisible.

If the Observer is at any place between the terrestrial Equator and the terrestrial Poles, the celestial Poles are away from the Horizon, and the Equator, and therefore every daily circle, cuts the Horizon obliquely, the Equator being bisected by the Horizon passing through the east and west points, and the other daily circles cutting the Horizon at points nearer the North Point, or nearer the South Point.

The Equator and each daily circle will complete one rotation or 360 degrees in one sideral day *(nākṣatra* day), which is divided into 60 *nāḍīs* (or *ghaṭikās* or *daṇḍas)* or 3,600 *vināḍīs* (or *palas)* or 21,600 respirations (or *prāṇas* or *asus)* or 216,000 long syllables (i.e. time taken in pronouncing a long syllable). Thus,

1 sidereal day=60 *nāḍīs,*
1 *nāḍī* (about 24 minutes)=60 *vināḍīs,*
1 *vināḍī* (about 24 seconds)=6 respirations,
1 respiration (about 4 seconds)=10 long syllables.

There are other sub-divisions of a sidereal day, but this is the one most commonly used.*

Six degrees of a daily circle are thus completed in 1 *nāḍī* (or *nāḍikā or ghaṭikā),* and I degree of a daily circle is equivalent to 10 *vināḍīs* (or *palas)* and 6′ of arc to 1 *vināḍī* of time ; the time may thus be converted into arcs of daily circles, and *vice versa.* This may be compared to the modern method of converting 15 degrees of the daily circle into one sidereal hour of time, and *vice versa.*

The hour angle is the angle between the Meridian and a Secondary to the Equator (i.e. a great circle passing through the Poles and perpendicular to the Equator); this may be converted into time at the same rate as given above.

**Sūryya-Siddhānta,* I, 11-12.

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The Right Ascension of a heavenly body is the intercept of the Equator between the First Point of Aries and the declination circle (secondary to the Equator) through the heavenly body ; it is also converted into time as before. The portion of the declination circle between the heavenly body and the Equator is called the declination of the body ; such declination is denominated North or South, according as it lies to the North or South of the Equator.

If a perpendicular great circle (Secondary) be drawn through a heavenly body on the Ecliptic, the portion of the Ecliptic intercepted between the First Point of Aries and the Secondary is called longitude, and the portion of the Secondary between the heavenly body and the Ecliptic is called latitude. The latitude is termed North or South, according as it lies to the North or South of the Ecliptic.

If a Secondary (i.e. a Declination Circle) is drawn to the Equator through the heavenly body, the portion of the Ecliptic intercepted between the First Point of Aries and the Secondary to the Equator is called *dhruva* or polar longitude, and the portion of the Secondary intercepted between the body and the Ecliptic is called polar latitude (termed North or South as before).

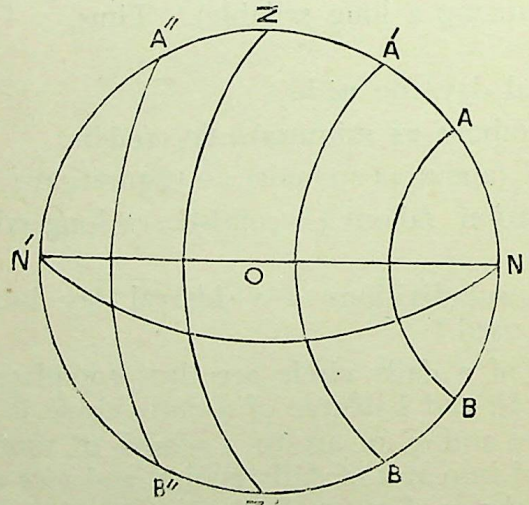

Diagram IX

All this is illustrated in the accompanying Diagrams. In Diagram IX, the Observer is on the terrestrial Equator, and his latitude is Zero ; the Poles are on the Horizon NN′; the Equator is perpendicular to the Horizon and passes through the Zenith (Z) and the Nadir (Z′); the daily circles AB, A′B′ and A″B″ are parallel to the Equator and perpendicular to the Horizon. The sphere in this case is called the right sphere.

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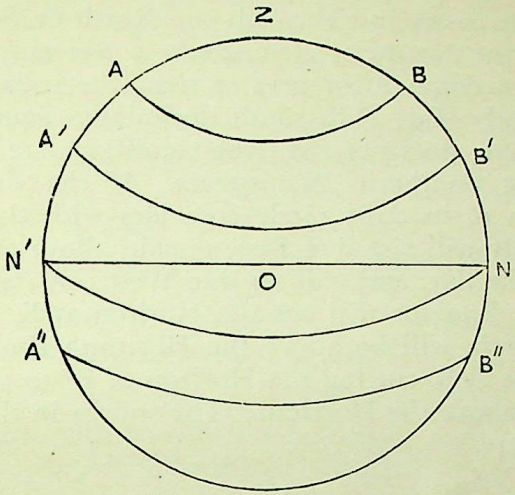

Diagram X

In Diagram X, the Observer is at the North Pole, and his latitude is 90 degrees. The Zenith coincides with the celestial North Pole, and the Equator with the Horizon ; the daily circles AB, A′B′ and A″B″ are parallel to the Horizon, and there is no rising or setting.

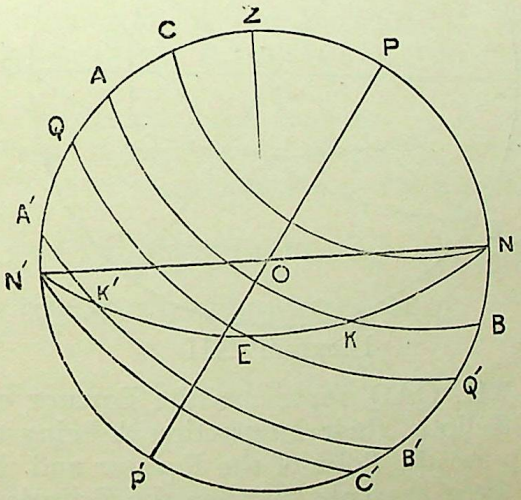

Diagram XI

In Diagram XI, an intermediate position of the Observer is shown with latitude ϕ. NEN′ is the Horizon, QEQ′ the Equator, PN is the altitude of the North Pole and is equal to the latitude ϕ, which is also equal to ZQ ; Q′N and PZ are equal to the co-latitude, $90° - \phi$. If the declination of a heavenly body is equal to the co-

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latitude, Q'N (North) or Q'C' (South), its daily circle does not cut the Horizon, but passes just through the North or South points ; to an Observer in the Northern Hemisphere a heavenly body having a north declination equal to or greater than the co-latitude does not set, and a heavenly body with south declination equal to or greater than the co-latitude does not rise ; the conditions are reversed for an Observer in the Southern Hemisphere. If the declination of a heavenly body is o, its daily circle coincides with the Equator, and the heavenly body will rise due East, remain above the Horizon and visible for half the day, and will set due West. A daily circle AB to the north of the Equator will cut the Horizon at K, and more than half the daily circle will be above the Horizon ; similarly, less than half a daily circle A'B' cutting the Horizon at K' to the south of the Equator will be above the Horizon. The sphere in this case is called the oblique sphere.

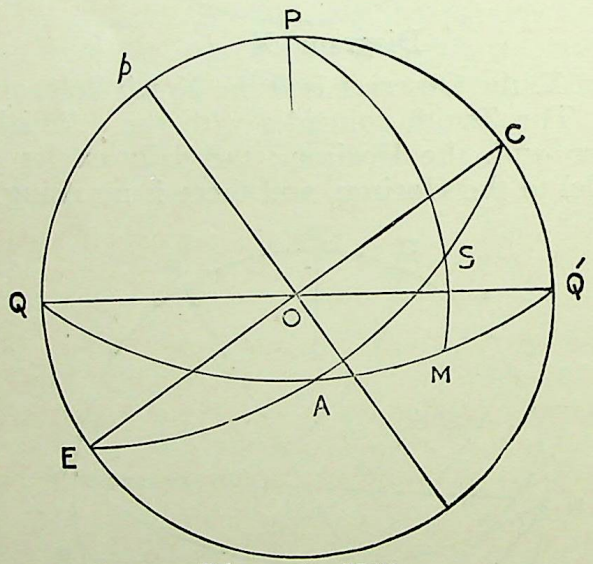

Diagram XII

In Diagram XII, QAQ' represents the Equator on the celestial sphere, EAC the Ecliptic, their intersection A being the First Point of Aries ; P and p are the Poles of the Equator and the Ecliptic respectively. Let S be a heavenly body on the Ecliptic, PSM being a Secondary to the Equator. The longitude *(l)* of S is AS measured on the Ecliptic from the First Point of Aries (in the direction ASC), and the Right Ascension (R.A.) of S is AM measured on the Equator from the First Point of Aries (in the direction AMQ'); and SM is the declination (δ) of S. The angle CAQ' *(w)* is the obliquity of the Ecliptic, and is measured by the arc CQ' of the great circle PCQ'EQp

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perpendicular both to the Equator and the Ecliptic ; in Indian astronomy, it is taken as 24°; according to modern astronomy, the mean value of the obliquity of the Ecliptic is 23° 26′ 50″, and it is subject to a small temporary fluctuation by *nutation,* and it has also a slow continuous decline at the rate of 46″.84 per century*. The angle SMA is a right angle. From the properties of a right-angled spherical triangle,

$$\text{(i)} \quad \frac{\sin SM}{\sin \angle SAM} = \frac{\sin AS}{\sin 90^\circ}, \text{ or } \sin \delta = \sin w \sin l;$$

$$\text{(ii)} \quad \tan SM = \tan \angle SAM. \sin AM,$$

$$\text{or } \sin R.A. = \tan \delta / \tan w.$$

These relations are true for any position of S on the Ecliptic. If S_1, S_2 and S_3 be the end points of the first three signs of the Ecliptic from the point of intersection with the Equator and to the north of it, having longitudes 30°, 60° and 90°, and if δ_1, δ_2, δ_3 be their declinations, then

$\text{Sin } \delta_1 = \text{Sin } 24^\circ. \text{ Sin } 30^\circ$, whence $\delta_1 = 11^\circ\ 44'\ 2''$;

$\text{Sin } \delta_2 = \text{Sin } 24^\circ. \text{ Sin } 60^\circ$, whence $\delta_2 = 20^\circ\ 37'\ 43''$;

and $\delta_3 = 24^\circ$.

The declinations of the Sun (for each half Sign) in minutes are given in *Khaṇḍakhādyaka* (I, 29) as 362, 703, 1002, 1238, 1388 and 1440.

With this introduction, we next turn to v. 22 of *Laghumānasa.*

To determine the ascensional differences of the end-points of the first three Signs of the Ecliptic north of the Equator –

नख (२०) घ्नी विषुवच्छाया स्वाक्षांशो (१/५) ना त्रि (३) भाजिता ।
उदग् विषुवदाद्यर्कभुजराशिगुणाश्चरे ॥ २२ ॥

nakha-(20)-ghnī viṣuvacchāyā svākṣāṁśo-(1/5)-nā tri-(3)-bhājitā |
udagviṣuvadādyarkabhujarāśiguṇāścare || 22 ||

22. Multiply the equinoctial shadow by 20 ; deduct from the product its fifth part ; again divide the product by 3 ; in the determination of the *caras* (ascensional differences), the three results are the *jyās* (of the ascensional differences) respectively for the three Signs

*Ball, Spherical Astronomy, Ch. V, 32.

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of the sun to the north of the Equator commencing from the First Point of Aries (i.e. commencing from Vernal Equinox).

Notes.—(1) If s represents the equinoctial shadow, 20 s, 20 s– $\frac{20s}{5}$ (i.e. 16s), and 20s/3 represents the measures of *caras* (twice the time interval between the six-o'clock circle and the horizon) of the end-points of the first three Signs of the Ecliptic to the north of the Equator commencing from the First Point of Aries.

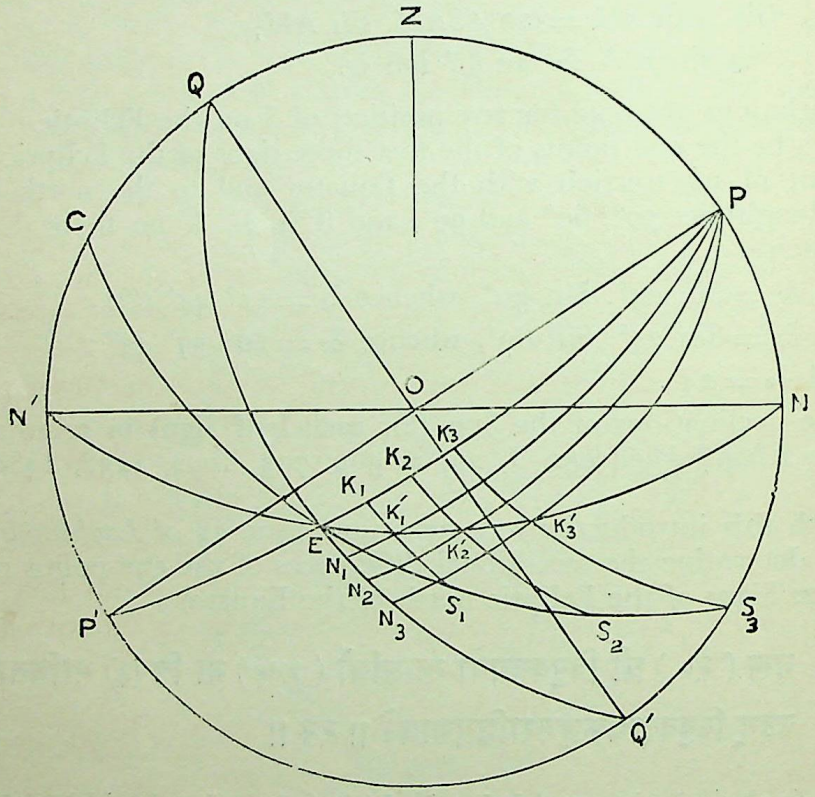

Diagram XIII

(2) In the Diagram XIII, NPZQN' is the Meridian, N'EN the Horizon, QEQ' the Equator, $CES_1S_2S_3$ the Ecliptic cutting the Equator at the moment at the East Point E, P the North Pole, Z the Zenith, O the centre of the Celestial Sphere where the Observer is, PEP' the six-o'clock circle ; S_1, S_2, S_3 the end-points of the first three Signs of the Ecliptic from the point of intersection with the Equator and to the north of it, SK'_1K_1, SK'_2K_2 and SK'_3K_3 the daily circles of S_1, S_2, S_3, cutting the six-o'clock circle at K_1, K_2, K_3, and the Horizon at

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K'_1, K'_2, K'_3 ; PK'_1N_1, PK'_2N_2 and PK'_3N_3 being Secondaries to the Equator through the points K'_1, K'_2, K'_3 respectively.

The interval of time between the crossings of the six-o'clock in the morning and in the evening by any heavenly body is half a sidereal day ; but, since S_1 rises at K_1' before it reaches the six-o'clock circle at K_1, in addition to half a sidereal day it will remain above the horizon for twice the time taken in moving from K_1' to K_1 in its daily circle ; if K was to the south of E (the East point), S would remain above the Horizon for half a sidereal day less twice the time taken by S in moving from the six-o'clock circle to the Horizon ; and this is denoted as *cara* in the daily circle ; if S represents the sun, the *cara* signifies the difference (excess or deficit) between the day (as distinguished from night) and 30 *ghaṭikās*. If the arc K_1K_1' was measured in angle there would be no difficulty, but its *jyā* is first obtained with the radius (R cos δ) of the daily circle (which is a small circle), and has therefore to be converted into the *jyā* of the corresponding arc in the great circle (the Equator). The time corresponding to this is called *caradala* or half *cara*. Verse 22 gives the values of the *caras* (and not half *caras)* for the end-points of the first three Signs of the Ecliptic from the point of intersection with the Equator and to the north of it.

The angle PEN is equal to the latitude (ϕ) of the Observer, and therefore angle NEQ' is $90°-\phi$; the angles PN_1E, PN_2E and PN_3E are right angles. From the properties of right-angled spherical triangles,

$$\sin EN_1 = \tan K_1'N_1/\tan(90°-\phi) = \tan\delta_1 \tan\phi.$$

where δ_1 is the declination of S_1 and therefore of K_1', and EN_1 is the Right Ascension of K'_1. This is expressed by the Indian astronomers in the following form :

$$R \sin EN_1 = \frac{R \sin \phi \times R \sin \delta_1}{R \cos \phi} \times \frac{R}{R \cos \delta_1}$$

(Āryyabhaṭa, Golapāda, 26)

where R is the radius of the great circle and R cos δ_1 the radius of the daily circle of S_1. R sin EN_1 measures *jyā* of half *cara* of S_1 in the great circle. Similarly R sin EN_2 and R sin EN_3 are determined. As the values of the *jyās* are less than 225′, the arcs are taken equal to the *jyās,* and then converted into time at the rate of 1 *vināḍikā* of time for 6′ of arc.

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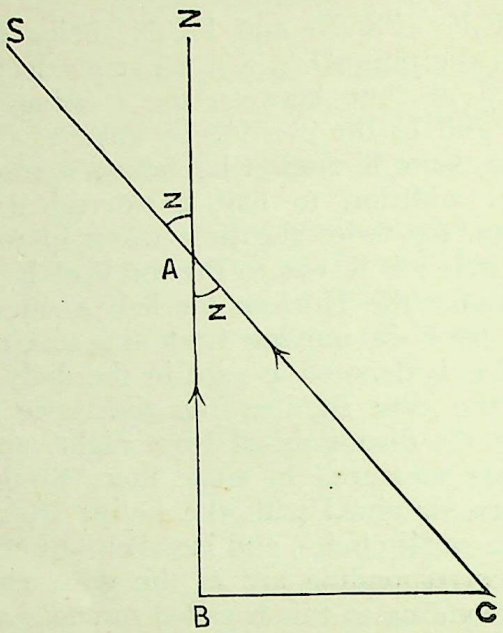

Diagram XIV

(3) In the Diagram XIV, AB represents a vertical *Śaṅku* or gnomon (divided into 12 units of length), BC its shadow at the moment on the horizontal plane (which must be perpendicular to AB), and AC the hypotenuse of the right-angled triangle ABC called the shadow triangle. BA being vertical points to the Zenith (Z), CA points to the sun at the instant (because BC is the shadow), and the angle BAC is therefore equal to the angle between the sun and the Zenith, which is called the Zenith distance (z) of the sun. Therefore $BC = 12 \tan z$, $AC = 12 \sec z = \sqrt{BC^2 + AB^2}$. If the sun is on the Meridian, z becomes $\phi \pm \delta$, and $BC = 12 \tan (\phi \pm \delta)$, $AC = 12 \sec (\phi \pm \delta)$. On the equinoctial day, the sun is on the Equator, and δ is 0; $BC = 12 \tan \phi$ and $AC = 12 \sec \phi$; BC is then the equinoctial mid-day shadow, which is shortly denoted by the term *equinoctial shadow*.

The equinoctial shadow referred to in v. 22 is this equinoctial mid-day shadow and, as the gnomon is always taken as 12 units. is $12 \tan \phi$.

(4) Thus $EN_1 = R \sin EN_1 = R \tan \delta_1 . \tan \phi$

$$= \frac{R \tan \delta_1}{12} \times 12 \tan \phi$$

$$= \frac{3438' \times \tan \delta_1}{12} \times \text{equinoctial shadow}$$

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But $\frac{3438' \times \tan \delta_1}{12} = \frac{3438' \times \tan 11^\circ\ 44'\ 2''}{12}$

$= 59'.508 = \frac{59.508}{6}$ *vinādikās* $=$ 10 *vinādikās (approx.).*

Similarly, $\frac{3438' \times \tan \delta_2}{12} = \frac{3438' \times \tan 20^\circ\ 37'\ 43''}{12}$

$=$ 107.8516 minutes of arc $=$ 18 *vinādikās* (approx);

and $\frac{3438' \times \tan \delta_3}{12} = \frac{3438' \times \tan 24^\circ}{12}$

$=$ 127.558 minutes of arc $=$ 21 and 1/3 *vinādikās* (approx.).

The *caradala* (half *cara)* of S_1 is thus ($EN_1 =$) 10 *vinādikās,* that of S_2 is ($EN_2 - EN_1 = 18 - 10$) or 8 *vinādikās,* and that of S_3 ($EN_3 - EN_2 =$) is ($21\frac{1}{3} - 18$) or 10/3 *vinādikās ;* multiplied each by the equinoctial shadow. The *caras* or double the quantities are given in v. 22, as stated above as 20×s, 16×s, and 20×s/3, where s is the equinoctial shadow.

Compare values of *caradalas* (half *caras)* given by other writers :— *Brahmagupta, Khaṇḍakhādyaka,* I, 21 : 159/16, 65/8 and 10/3 ; *Bhāskara, Grahagaṇita, Spaṣṭādhikāra,* 50-51 : 10, 8 and 10/3 ; *Pañcasiddhāntikā* : 10, 8·25 and 3·375.

To determine the times of risings of the 12 signs of the Ecliptic —

वसुभान्य (२७८) ङ्कगोदस्रा (२९९) स्त्रिदन्ता (३२३)श्च
क्रमोत्क्रमात् ।
तत्तच्चरगुणार्धोना मध्यषट्केऽन्यथोदयाः ॥ २३ ॥

vasubhāny-(278)-aṅkagodasrā-(299)-stridantā-(323) śca kramot-kramāt |
tattaccaraguṇārdhonā madhyaṣaṭke 'nyathodayāh || 23 ||

23. The times of risings of the different signs are given by 278, 299, 323 *palas* in order for the first three signs and in inverse order for the last three signs, less half the *cara-guṇas* (half the *caras* determined in the last verse); the reverse being the case for the six intermediate signs.

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Notes.—(1) In a place on the Equator, the *cara* is nil, and the times of risings of the 12 signs in order are—278, 299, 323 ; 323, 299, 278 ; 278, 299, 323 ; 323, 299, 278 *palas ;* in any other place, where the *cara* is not nil, we must deduct from the first three and the last three durations, and add to the intermediate six values, half the corresponding *caras.*

(2) Thus, at Kashmere, where the equinoctial shadow is 8 ang. 7′, the *cara-guṇas* respectively are :

162, 130, 54 ; 54, 130, 162 ; 162, 130, 54 ; 54, 130, 162

for the 12 signs in order ; thus, the times of their risings are —

278—81=197 ; 299—65=234 ; 323—27=296 ;
323+27=350 ; 299+65=364 ; 278+81=359 ;
278+81=359 ; 299+65=364 ; 323+27=350 ;
323—27=296 ; 299—65=234 ; 278—81=197 .

It will be observed that the total number of *palas* required for the rising of the 12 signs is 3,600 in every case, as it should be.

(3) Rationale.—In a place on the Equator, the latitude of the station and therefore the altitude of the Pole is Nil ; the Poles (North and South) therefore lie on the Horizon and coincide with the North and South points ; the *unmaṇḍala* or six-o'clock circle PEP′ (see Diagram XIII) coincides with the Horizon NEN′ ; all daily circles (including the Celestial Equator) cut the Horizon in right circles, half the circles being above and half below the Horizon. There is thus no *cara* for a station like this, and $K_1K'_1$, $K_2K'_2$, $K_3K'_3$ would be 0. The times of rising of the first Sign, the first two Signs and the first three Signs would be given by the arcs of the corresponding daily circles of S_1, S_2 and S_3, namely by S_1K_1, S_2K_2 and S_3K_3, or, reduced to a great circle, by the corresponding Right Ascensions, R.A.$_1$, R.A.$_2$, R.A.$_3$.

As shown above (see Diagram XII), sin R.A.=tan δ/tan w, where sin δ=sin $w\times$sin longitude.

The values of δ_1, δ_2, δ_3, the declinations of S_1, S_2 and S_3, have been found to be 11° 44′ 2″, 20° 37′ 43″ and 24°.

R. sin R.A.$_1$=R tan δ_1/tan 24°, whence R.A.$_1$ = 27° 49′ = 278 *vin.*

R. sin R.A.$_2$=R tan δ_2/tan 24°, whence R.A.$_2$ = 57° 43′ = 577 *vin.*

R sin R.A.$_3$=R tan δ_3/ tan 24°=R tan 24°/tan 24°, whence, as also from the Figure itself, R.A.$_3$=90°=900 *vin.*

The time of rising of the first Sign is thus 278 *vin.* The time of rising of the second Sign, being the time of rising of the first two

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Signs *less* that of the first Sign, is 299 *vin.* And the time of rising of the third Sign, being the time of rising of the first three Signs *less* the time of rising of the first two Signs, is 323 *vin.*

The times of rising of the next three Signs would be these numbers in the reverse order, namely, 323 *vin.*, 299 *vin.* and 278 *vin.*

The times of rising of the other six Signs will similarly be 278, 299, 323 ; 323, 299, 278 *vināḍīs.*

For a place not on the Equator, i.e. where the latitude is not 0, the corresponding *caradalas* (as determined by the method of v. 22) are to be deducted from the times of rising as obtained for a place on the Equator of the first three Signs, because the times of rising are given by the arcs of the corresponding daily circles (see Diagram XIII) S_1K_1', S_2K_2' and S_3K_3', which are equal to $S_1K_1 - K_1K_1'$, $S_2K_2 - K_2K_2'$ and $S_3K_3 - K_3K_3'$. The *caradalas* are to be similarly deducted from the corresponding times of rising at the Equator of the last three Signs, while for the intermediate six Signs they are to be added.

This is illustrated in the example given above.

(4) Compare with *Sūr. Sid.*, III, vv. 42-45, where the values are given not in *vināḍīs*, but in respirations, as 1670, 1795 and 1935, a *vināḍī* being equal to 6 respirations.

To determine *lagna* at a desired instant of time and *conversely* the time of a given *lagna* –

स्वोदयैः प्रश्ननाड़िभिर्वर्धितोऽर्कोऽनुपाततः।
लग्नं तद्वद्विवृद्धेऽर्के लग्नतुल्ये तु नाड़िकाः॥ २४॥

svodayaih praśnanāḍibhirvardhito 'rko 'nupātatah |
lagnaṁ tadvadvivṛddhe 'rke lagnatulye tu nāḍikāh || 24 ||

24. Find from the local durations of risings of the Signs by proportion the number of signs and degrees etc. which rise from sunrise to the desired instant of time ; increase the longitude of the sun by this ; the result gives the point of the sign which is *lagnam* (i.e. *kṣitija-vilagnam,* i.e. which lie on the eastern horizon at the instant, the orient ecliptic point). In the same way, the longitude of the sun being increased to the *lagna* at any instant (i.e. finding by proportion the time during which rises the difference between the *lagna* and the longitude of the sun), the time in *nādikās* can be found.

Notes.–(1) Compare *Khaṇḍakhādyaka,* III, 5 :

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इष्टघटिकाभिरुदयैरनुपाताद् वर्द्धितो रविर्लग्नम् ।
अनुपातवर्द्धितेऽर्के लग्नसमे स्यादयैर्घटिकाः ॥

(2) *Lagna* means the longitude of the point of the Ecliptic which lies on the eastern horizon at the moment. At sunrise (o *ghaṭikās)* the *lagna* must be the true longitude of the sun. At any other required instant of time, we need therefore only find the portion of the Ecliptic (in signs, degrees, minutes, etc.) which rises during the interval from sunrise to the instant of time in question (by the rule given in the last verse), and add this to the longitude of the sun at sunrise (which varies by less than a degree during one day).

In deducing the time from the given *lagna,* we have to make the reverse calculations.

In making these calculations, it must be remembered that 1 day *(ahorātra)* = 30 *muhurtas* = 60 *nāḍīs* or *ghaṭis* = 3,600 *vināḍīs* or *palas* = 21,600 *prāṇas* = 2,16,000 *vipalas ;* and that a sign=30 degrees = 1800 minutes of arc.

(3) An illustration will make it clear. In Kashmere, say, the instant in question is 19 gh. 10 *palas* or 1150 *palas* from sunrise ; true longitude of the sun is 8^s 19° 38′ ; precession is 7° 16′. Therefore, the true longitude of the sun from the Vernal Equinoctial Point is 8^s 26° 54′.

The time taken for the 9th sign *(Dhanu)* to rise = 350 *palas,*

∴ the time taken for the remaining 186′ of the 9th sign to rise = 350×186′/1800′ or, 36 *palas ;*

the time taken for the 10th, 11th, 12th and the 1st signs to rise =(296+234+197+197) or, 924 *palas ;*

the balance of the required duration is (1150—36—924) or, 190 *palas,*

but, the second sign rises in 234 *palas,*

and, therefore, the portion of the 2nd sign which roses in 190 *palas* = 190×1800/234 min. or 24° 49′.

Thus during 19 *gh.* 10 *palas* or 1150 *palas* from sunrise, 4^s 27° 55′ of the Ecliptic rises. Adding this to the true longitude of the sun 8^s 26° 54′, we get the *lagna* as 24° 19′ of the 2nd sign from the Vernal Equinoctial Point ; deducting precession, we get the

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lagna from the fixed point of the Ecliptic, namely, 17° 33′ of the 2nd sign.

To determine the *time* corresponding to a *given lagna,* we make the calculations in the reverse order. Thus, if the *lagna* and the longitude of the sun respectively be 1^s 17° 33′ and 8^s 19° 38′, adding precession to both, the corrected values are 1^s 24° 49′ and 8^s 26° 54′ respectively.

The time taken by 24° 49′ of the 2nd sign to rise is 234×24° 49′/30° or 190 *palas*
the times taken by the 1st, 12th, 11th and 10th signs to rise are (197+197+234+296) or 924 *palas*
the time taken by 186′ of the 9th sign is 36 *palas*
the total time from sunrise is thus 1,150 *palas*
or 19 *gh.* 10 *palas.*

To determine the lengths of the day and the night at a given place and to determine the interval after which the sun will cross the meridian or before which it crossed the meridian —

व्यस्तं चरविनाड़िभिः खाग्नयः (३०) संस्कृता दिनम् ।
मध्याह्नान्ननतनाड्यः स्युर्दिनार्धेष्यु गतान्तरम् ॥ २५ ॥

vyastaṁ caravināḍibhih khāgnayah (30) saṁskṛtā dinam |
madhyāhnānnatanāḍyah syurdinārdhadyugatāntaram || 25 ||

25. Thirty *(ghaṭikās)* corrected *inversely* by the *cara-palas (cara-vināḍīs)* give the length of the day; the difference between the half-day (as found above) and the portion of the day elapsed gives the *nata-ghaṭikās* (hour angle) from mid-day.

Notes.—(1) Illustration.—Suppose the longitude of the sun from the vernal Equinoctial Point is 8^s 26° 47′, the observer being in Kashmere.

The *cara* is 340 *palas* or 5 *gh.* 40 *palas;*
the sun being in the *last* six signs, the sign is *negative,*
and thus the length of the day is 30 *gh.* — 5 *gh.* 40 *palas*
or 24 *gh.* 20 *palas;*
and the length of the night will be 35 *gh.* 40 *palas.*
The half-day is 12 *gh.* 10 *palas.*
If the time (portion of day elapsed from sunrise) is 21 *gh.* 30 *palas,* the *nata-ghaṭikā* is 9 *gh.* 20 *palas,*
and this is how long ago the sun crossed the meridian,

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(2) The period from sunrise to sunrise is 60 *ghaṭikās;* the average length of the day or the night is 30 *ghaṭikās;* this is also the length of every day and every night at any place on the Equator, where the *cara* is nil. Thus,

$$30 \text{ ghaṭikās} \pm cara$$

gives the actual length of the day at any particular time of the year.

(3) The word 'direct' is taken by *Muñjala* throughout the treatise to mean that the sign is *negative* for the first six signs and *positive* for the next six. And thus the word 'inverse' *(vyastam)* signifies that the sign of the element in question is *positive* for the first six and *negative* for the last six signs.

(4) The hour angle is the angle which a secondary to the Equator makes with the meridian and is measured east or west from 0° to 180°; if converted into time at the rate of 15° to the hour, it gives in the case of the sun the time from mid-day, i.e. the time that the sun will take to reach the meridian or the time before which the sun crossed the meridian ; the time in *ghaṭikās* is called *nata-nāḍis* or *nata-ghaṭikās.* Since the sun reaches the meridian after the end of half a day from sunrise, if the day elapsed is less than half-day, half-day less day elapsed is the *nata-ghaṭkā* (hour angle) measured on the east from the meridian, and if the day elapsed from sunrise is greater than half-day, day elapsed less half-day is *nata-ghaṭikā* (west). Thus if the day elapsed is known, the *nata-ghaṭikā* can be determined ; and, conversely, if the *nata-ghaṭikā* (east or west) is known, the portion of day elapsed can be found.

Compare *Sūryya-Siddhānta,* III, 34-36 ; *Khaṇḍa-khādyaka* III, 10 :

द्यु दलं नतहीनदिवसगतशेषम् ।

The term *nata* is also used to designate meridian zenith distance of the sun. For zenith distance off the meridian the term *dṛṣ* is used. (See *Sūr. Sid.,* III, 15, 33).

Perhaps the term *natanāḍī* is used in *Laghumānasa* to denote the hour angle in time and to distinguish it from zenith distance (whose conversion into time has no meaning).

The term *unnata* is used to denote the altitude, and is the complement of *dṛṣ* (zenith distance). The term *avanati,* or simly *nati,* is used for parallax in latitude.

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To find the mid-day shadow on any desired day—

पञ्चघ्नेष्टचरार्धेन पलभाप्तेन संस्कृतात् ।
आद्याच्चरगुणाद*ह्ना दिगूनेन दिनार्धभा ॥ २६ ॥

pañcaghneṣṭacarārdhena palabhāptena saṁskṛtāt |
ādyāccaraguṇādahnā digūnena dinārdhabhā || 26 ||

26. Multiply half the *cara* on any day by 5, and divide the product by the eqninoctial shadow; the *cara-guna* of the first sign (as determined in verse 22) corrected by the quotient (found above—taken negatively for the first six and positively for the last six signs), and then divided by the length of the day less 10 *ghaṭikās,* gives the mid-day shadow (on the day).

Notes.–(1) As shown above, in the shadow triangle (Diagram XIV), with gnomon vertical (i.e. pointing to the Zenith), its shadow horizontal (perpendicular to the vertical gnomon), and the hypotenuse pointing towards the Sun, the angle between the gnomon and the hypotenuse is equal to the angle between the Zenith and the Sun and therefore gives the zenith distance (z) of the sun. Thus we get the following general relations :

gnomon $= 12$

shadow $= 12 \tan z = \sqrt{\text{hypotenuse}^2 - \text{gnomon}^2}$

hypotenuse $= 12 \sec z = \sqrt{\text{gnomon}^2 + \text{shadow}^2}$

On the equinoctial day at mid-day $z = \phi$, the latitude of the observer, and the mid-day shadow ($= 12 \tan \phi$) on the equinoctial day is called the equinoctial shadow *(palabhā).* On any other day, when the declination (δ) of the sun is not zero, the mid-day shadow will be $12 \tan (\phi \pm \delta)$.

(2) The object of this verse is to find the mid-day shadow on a day other than the equinoctial day when the *cara* corresponding to the end-point of the first sign (from the vernal equinoctial point) and the *cara* for the day (i.e. excess of the day over 30 *ghaṭikās)* are known. In the next two verses, a rule is given for the determination of the shadow at a moment of time other than mid-day for which moment the hour angle *(nataghaṭikā)* of the sun is known. In verses 29-30 the converse rule is given for the determination of the time (hour angle of the sun or *nataghaṭikā)* from the observation of the shadow at the moment.

---

*Alternative reading : आद्याच्चरादाप्तमह्ना ।

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(3) The formula may be thus expressed :

$$\text{mid-day shadow} = \frac{\text{first } \textit{cara-guna} \mp 5 \times \text{half } \textit{cara/palabhā}}{\textit{dina-ghaṭikā} - 10}$$

$$= \frac{20 \times 12 \tan \phi \mp 5\,(d/2 - 15) \times 60/12 \tan \phi}{d - 10}$$

(where d is *dina-ghaṭikā*)

since half *cara* $= (d/2 - 15)$ *ghaṭikās* $= 6\,(d/2 - 15)$ *degrees*
$= 60\,(d/2 - 15)$ *vināḍīs.*

If R be 120°, R sin *(cara/2)* $= 12\,(d/2 - 15) = 6\,(d - 30)$.

Then, *antyā* $=$ R $+$ R sin *(cara/2)* $= 6\,(d - 10)$, the Sun's declination being North.

For the south declination of the sun, R sin *(cara/2)*$=6\,(30-d)$;
$\therefore$ *antyā* $=$ R$-$R sin *(cara/2)* $= 6\,(d - 10)$.

But *antyā*$=$R $(1 \pm \tan \phi \tan \delta) = 120\,(1 \pm \tan \phi \tan \delta)$

therefore, $(d-10) = 20\,(1 \pm \tan \phi \tan \delta)$

and $(d/2-15) = \pm 10 \tan \phi \tan \delta$.

The right hand side of the formula

$$= \frac{20 \times 12 \tan \phi \mp 5 \times 60 \times 10 \tan \phi \tan \delta / 12 \tan \phi}{20\,(1 \pm \tan \phi \tan \delta)}$$

$$= \frac{12 \tan \phi \mp 12\frac{1}{2} \tan \delta}{1 \pm \tan \phi \tan \delta}$$

$$= \frac{12\,(\tan \phi \mp \tan \delta)}{1 \pm \tan \phi \tan \delta} \quad \text{approximately}$$

$$= 12 \tan (\phi \mp \delta) = \text{mid-day shadow.}$$

The *negative* sign is to be taken for the first six signs from the First Point of Aries, that is, when the Sun's declination is North, and the *positive* sign for the next six signs, that is, when the Sun's declination is South.

(4) Illustration.—

Let *carārdha*$=$170 *palas* 45 *vipalas ;*
multiplying by 5, this becomes 853 p. 45 v.
Dividing by the equinoctial shadow of Kashmere, namely, 8 *aṅg.* 7 *vyaṅgulas,* we get 105 p. 11 v. The sun being in the 9th sign, add this to the *cara-guṇa* of the first sign 162 p. 20 v. ; the sum being 267 p. 31 v. ; dividing by 14 *gh.* 20 *palas* (i.e. the day 24 *gh.* 20 *palas less* 10 *ghaṭikās),* mid-day shadow$=$18 *aṅg.* 38 *vyaṅg.*

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THE LINE OF KṚṢṆAGUPTA*

By H. C. Ray

The line of Kṛṣṇagupta is well known. As early as 1888, Fleet published four inscriptions of this family under the caption "Guptas of Magadha."[1] He also gave a summary of a fifth inscription in one of his footnotes.[2] The provenance of these records is restricted by the boundaries of the districts of Gaya, Patna, Bhagalpur and Shahabad districts of Bihar and Deoghar in the Santal Parganas. The characters of the inscriptions have been described by Fleet as of "the Kuṭila variety of the Magadha alphabet of the seventh century A.D."[3] These epigraphs are all incised on stone and are, with one exception, undated. The number of princes mentioned in these records is eleven and can be arranged as follows :—

1) Kṛṣṇagupta
I
2) Harṣagupta
I
3) Jīvitagupta I
I
4) Kumāragupta
I
5) Dāmodaragupta
I
6) Mahāsenagupta
I
7) Mādhavagupta
I
8) Ādityasena
I
9) Devagupta I
I
10) Viṣṇugupta
I
11) Jīvitagupta II

---

* This paper was read before the "History Section" of the *Tenth All India Oriental Conference* held at Tirupati in March, 1940.

1. *Corpus Inscriptionum Indicarum*, (C.I.I) Vol. III. pp. 14 (Introduction), 200-18 (Text). 2. *Ibid*, p. 212, fn. 6. 3. *Ibid*, p. 202.

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Though the records of this family are mostly undated, yet their script and internal evidence have helped the determination of their period with tolerable certainity.[4] The only question which I want to discuss here is the problem of their origin. Since the date of the publication of the "Inscriptions of the early Gupta Kings and their successors," scholars have for a long time accepted this line as a branch of the Imperial Gupta dynasty descended from the Mahārāja Gupta.[5] Sometime ago I placed before Dr. H. C. Raychaudhuri some of the difficulties I felt in accepting this conclusion. I am glad that he has seen the force of some of my arguments and has incorporated them in the form of a footnote in the latest edition of his "Political History of Ancient India"[6] and has placed the word "Gupta" within inverted commas in his discussion on the princes of the line of Kṛṣṇagupta. The arguments which can be urged against the conclusion that the line in question were descended from the Imperial Guptas can be very briefly stated as follows.

It is admitted that the princes of the line of Kṛṣṇagupta were geographically and politically the inheritors of the imperial Guptas in north-eastern India. But it is really curious that their *praśastikāras* never even vaguely claim Gupta lineage for their patrons. In the Aphsad Inscription of Ādityasena, the progenitor of the line *Nṛpa Kṛṣṇagupta* is referred to as—*sadvaṃśaḥ sthira unnato giririva*. As it is against Indian epigraphic tradition not to refer to illustrious ancestors and as the number of records are nearly five it must raise in the mind of all scholars serious doubts as to the historicity of the usually accepted assumption that these princes were the descendants of Samudragupta Parākramāṅka and Candragupta Vikramāditya. Attention, in this connection, might well be drawn to the prominent mention of the Licchavi connection of the Guptas in their coins and inscriptions. These doubts are strengthened by the fact that the names of all these eleven princes do not end in "Gupta." In fact the name of the most powerful prince of this dynasty, who is described as the performer of the *Aśvamedha* and other great sacrifices'[7] ends not in "Gupta" but in "Sena."

Dr. Raychudhury drew my attention to the following passage in Bāṇa's Kādambarī[8] :—

"There was a Brahman, Kuvera by name, sprung from the race of

---

4. See Raychaudhuri, *Political History of Ancient India*, 1938, pp. 507 ff.
5. C.I.I., Vol. III, p. 8.
6. Op. cit., p. 507, fn. 1.
7. Fleet, op. cit., p. 213 fn.
8. Translated into English by Ridding, London, 1896, p. 2.

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Vātsyāyana,.....: his lotus feet were worshipped by many a Gupta, and he seemed a very portion of Brahma".

Now this Kuvera was the great-grandfather of Bāṇa, the court poet of the Puṣpabhūti[9] king Harṣa (606-47 A.D.). Bāṇa's genealogy can be shown as follows :—

1) Kuvera
I
2) Arthapati
I
3) Citrabhānu
I
4) Bāṇa

Granting about 25 years for each generation, Kuvera might roughly be placed about the beginning of the sixth century. As the Shahpur stone image inscription gives the date 672-73 A.D. for the eighth prince Ādityasena[10], it is possible that the reign of the eleventh prince Jīvitagupta II ended in the neighbourhood of 700 A.D. These eleven princes can be approximately placed in the period c. 500 A.D. to 700 A.D. Thus the Brāhmaṇa Kuvera, whose lotus feet were worshipped by many a Gupta, can be taken to have been a contemporary of some of the earlier princes of the line of Kṛṣṇagupta. But then, as Dr. Raychaudhuri himself observes, the Gupta admirers of Kuvera might have been "some hitherto unknown descendants of the early imperial (Gupta) line"[11]. The history of the Śuṅgas, the Sātavāhanas, and many other dynasties in Indian History clearly show that often the descendants of the main line continue to flourish in outlying portions of the empire long after the fall of the central government. Another point raised by the above scholar is the fact that some of the members of the line of Kṛṣṇagupta and those of the Imperial Gupta line bear similar names.[12] But, as I have shown elsewhere, this argument by itself can lead to no definite conclusion[13]. Among other cases, the remarkable similarity of the names of the Pāla sovereigns of Bengal and Bihar, the Pratihāra emperors of Mahodaya and the Kamboja kings of Bengal may be cited.

The *Harṣacarita* of Bāṇa refers to several persons whose family

9. 'Puṣyabhūti' according to Bühler, see *The Harṣa-Carita of Bāṇa*, Translated into English by Cowell and Thomas, London, 1897, p. 271, 83 (n. app.).

10. Fleet, op. cit., p. 210.

11. Op. cit., p. 507, fn. 1.

12. *Ibid.*, pp. 507 ff.

13. *Indian Historical Quarterly*, December, 1939, Vol. XV, p. 510 and 510 fn. 13.

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or personal names had "Gupta" connections. Thus we know of the two Mālava princes, the brothers Kumāragupta and Mādhavagupta who were appointed to wait upon Rājyavardhana and Harṣvardhana, the two sons of the Puṣpabhūti king Prabhākaravardhana of Sthānvīśvara[14]. As the Aphsad inscription of Ādityasena[15] notes the desire of Mādhavagupta, the seventh prince of the line of Kṛṣṇagupta, "to associate himself with the glorious Harṣadeva," it is probable, as Dr. Raychaudhuri suggests, that the two princes are identical. The acceptance of this identification is not without difficulties ; but even if it is accepted it does not materially help us to solve the problem of the origin of the line of Kṛṣṇagupta. Similarly, the other references in the *Harṣacarita* do not carry us very far. In one passage Bhaṇḍi, cousin and friend of Harṣa, is made to give the following answer to the King's question about the plight of his sister Rājyaśrī, the queen of the Maukhari prince Grahavarman[16],

"I learned from common talk that after his majesty Rājyavardhana was taken to paradise and Kānyakubja was seized by the man named Gupta, queen Rājyaśrī burst from her confinement, and with her train entered the Vindhya forest."

In another passage[17] we are told that Harṣa after making Rājyaśrī and her attendants partake of the food prepared for the funeral offerings in honour of her husband, "heard from the attendants the full story of his sister's misfortunes from her imprisonment onward,—how she was sent away from Kānyakubja, from her confinement there during the Gauḍa trouble, through the action of a noble named Gupta.....".

Now it is quite possible that these two persons bearing the name or surname Gupta are identical. It is also possible that he might have been a member of the family of Kṛṣṇagupta or of a prince of the early imperial Gupta line in league with the Gauḍa prince Śaśāṅka against the Maukharis of Kanauj. But in either case it is not established that the line of Kṛṣṇagupta was connected with the dynasty of the *Mahārāja* Gupta. It can at best prove that the line of Kṛṣṇagupta was sometimes called Gupta. Under these circumstances it would perhaps be better if we could show a little more hesitation in referring to the line of Kṛṣṇagupta as being descended from the loins of the Gupta Vikramādityas of Pāṭaliputra.

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14. Op. cit., Cowell and Thomas, 119 and 120.

15. *Śrī-Harṣadeva-nija-sa[ṁ]gama-vāñchayā ca* (?), Fleet, op. cit., pp. 204 and 207.

16. Op. cit., Cowell and Thomas, p. 224.

17. *Ibid*, pp. 250-51.

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THE MEANING OF BRAHMAN AND ĀTMAN IN THE ṚGVEDA[1]

By H. G. NARAHARI

Brahman and *Ātman* together form the pivot on which revolves the great wheel of Upaniṣadic thought; the former term is the less definite of the two, and is generally employed by the vast majority of the Upaniṣads to designate the "First Principle" of the universe.

The *Bṛhadāraṇyaka Upaniṣad* contains *three* dialogues wherein this meaning of Brahman is clearly expressed; the first dialogue (II. i) narrates the story of the proud Brahmin Bālāki Gārgya who approaches King Ajātaśatru offering to explain to him the nature of *Brahman*. On the king consenting to it and promising a reward of a thousand cows, Gārgya begins his exposition. *Twelve* times[2] in succession does he endeavour to define Brahman as the person in the Sun *(āditye puruṣaḥ)*, in the Moon, in Lightning, in Ether, in Wind, in Fire, in Water, in the Mirror, in Space, and in the Body, or as him whom here the sound follows as he departs *(ya evāyaṁ yantam paścāc chabdo' nūdeti)* or who consists of shadow *(chāyāmayaḥ puruṣaḥ)*. Each one of these definitions is confuted by the king who points out the subordinate position which each of these *puruṣas* occupies in the whole of Nature. Gārgya is silenced by his refutations and, unable to proceed further with the discussion, requests the king to teach him the subject. Using the illustration of the deep-sleeper and sermonizing over it, the King comes to the conclusion that He is *Ātman* in whom the vital breaths *(prāṇāḥ)* lie dormant and from whom, on his waking they issue, along with the worlds, the gods, and the living creatures. As the spider comes out with its thread, as small sparks spring forth from fire, so do all the senses, all the worlds, all gods and all living creatures come forth from that Self *(yathorṇanābhis tantunā uccared*

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1. Paper read at XVI Indian Philosophical Congress, Madras, December, 1940.

2. In the slightly varied version of the story which occurs in the *Kauṣītaki* Upaniṣad (Chap. IV), Gārgya attempts *sixteen* times to define Brahman, the additions being Echo *(pratiśruti)*, Sleep *(svapna)*, Right Eye *(dakṣiṇākṣi)*, and the Left Eye *(savyākṣi)* which are respectively identified as *asu* (Life), *yama* (Lord of the dead), *Vāc* (Speech) and *satyam* (Truth).

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yathāgneḥ kṣudrā viṣphuliṅgā vyuccaranti evam evāsmād ātmanas sarve prāṇās sarve lokās sarve devās sarvāṇi bhūtāni vyuccaranti)[3].

The second dialogue[4] is between *Vidagdha Śākalya* and *Yājñavalkya* where the former, in a similar attempt to define Brahman as forming the climax of all that the word Ātman denotes *(sarvasyātmanaḥ parāyaṇam)*, posits eight successive times the one-sided view that represents the Earth *(Pṛthivī)*, Desire *(Kāma)*, Forms *(Rūpa)*, Ether *(Ākāśa)*, Darkness *(Tamas)*, Forms *(Rūpāṇi)*, Life *(Asu)* and Semen *(Retas)* as its basis. Yājñavalkya corrects him each time by telling him that what he is propounding as Brahman is only a subordinate person *(Puruṣa)* who rules in the bodily forms. The dialogue concludes with Yājñavalkya pointing out that whatever has been explained by Śākalya refers only to the eight abodes, the eight worlds, the eight gods and the eight persons, and that the person *(Puruṣa)* of the *Upaniṣads* is one who plucks apart and puts together these persons, and who passes beyond them *(etāny aṣṭāv āyatanāny aṣṭau lokā aṣṭau devā aṣṭau puruṣās sa yas tān puruṣān niruhya pratyuhyātyakrāmat taṁ tvaupaniṣadam puruṣam prcchāmi)*.[5] Śākalya is asked to name this Puruṣa on pain of losing his head, and as he is unable to do so, the story goes, he suffered the dreadful penalty for having had the impudence to pass off a subordinate Puruṣa as the highest Ātman *(sarvasyātmanaḥ parāyaṇam)*.

The debators in the third dialogue[6] are King *Janaka* of Videha and the great Upaniṣadic seer *Yājñavalkya*. The latter, it is recounted, once entered the court of the former who, seeing him, enquired about the object of his visit, whether he was in need of cattle or any subtle discussions. Yājñavalkya replies that he came to him for both and asks the King to tell him beforehand what others might have told him (regarding the nature of the highest *Brahman*). Janaka informs him in reply that *Brahman* is Speech *(vāk)* according to *Jitvan Śaivalinī*, Breath *(Prāṇa)* according to *Udaṅka Śaulbāyana*, Sight *(Cakṣus)* according to Barku Vārṣṇa, Ear *(Śrotram)* according to *Gardabhīvipīta Bhāradvāja*, Mind *(Manas)* according to *Satyakāma Jābāla*, and the Heart *(Hṛdayam)* according to *Vidagdha Śākalya*. Yājñavalkya finds fault with all these definitions, each of which, according to him, emphasizes one particular phase of *Brahman;* to him, *Vāk, Prāṇa, Cakṣus, Śrotram, Manas* and *Hṛdayam* are mere "supports" *(Āyatana)*, by means of which six corresponding attributes that are assumed to

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3. *Bṛhadāraṇyaka Upaniṣad*, I. i. 20.
4. Ibid. III. ix. 10 ff.
5. Ibid. III. ix. 26.
6. Ibid. IV. i.

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belong to the Divine Being as *Prajñā, Priya, Satya, Ananta, Ānanda,* and *Sthiti,* manifest themselves in the space which is common to all the six as basis *(Pratiṣṭhā).*

The *Chāndogya Upaniṣad* (V. 11) gives a similar story of *five* Brahmins and Uddālaka Āruṇi whose view that the Ātman is Heaven *(Divaḥ),* the Sun *(Ādityaḥ),* the Wind *(Vāyuḥ),* Space *(Ākāśaḥ),* Water *(Āpaḥ)* and the Earth *(Pṛthivī)* is corrected by King Aśvapati who points out that the Universal Soul *(Vaiśvānara Ātman)* is of the measure of the span *(Pradeśamātram abhivimānam),* having the lustrous (Heaven) for its head, the manifold (Sun) for its eye, the many-pathed (Wind) for its breath, the extended (Space) for its body, Riches (Water) for its bladder, the support (Earth) for its feet, the sacrificial altar *(Vedi)* for its abdomen, the sacrificial grass *(Barhi)* for its hair, the *Gārhapatya-fire* for its heart, the *Anvāhāryapacana-fire* for its mind, and the *Āhavanīya-fire* for its mouth.[7]

Similarly, the *Śvetāśvatara Upaniṣad* (I. 1) opens with the question "What is the First Beginning, what is Brahman?" *(kiṁ kāraṇam brahma kutas ma jātāḥ....),* and the *Praśna Upaniṣad* (I. 1) and the *Ārṣeya Upaniṣad*[8] speak of wise men coming together in their quest for Brahman *(Paraṁ Brahma anveṣamāṇāḥ).*

The Upaniṣadic seers often indulge in symbolism and *Brahman* is then represented by them by some form which is cognizable through the senses. It is then understood as *Nāman, Vāk, Manas, Saṅkalpam, Cittam, Dhyānam, Vijñānam, Balam, Annam, Āpaḥ, Tejas, Ākāśa, Smara, Āśā, Prāṇa,* and *Bhūman,*[9] or as *Āditya,*[10] or as the gastric fire,[11] or even as the syllable "OM".[12] For all purposes of worship, these are as good as Brahman, and are related to it as the images are to the deities they represent.[13]

Regarding the essence of *Brahman,* it is said that it is neither

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7 *Chāndogya Upaniṣad,* V. 18. 8. *Adyar Library MS.,* IX. B. 184, fol. 46 ff.; the text of this Upaniṣad was reproduced with a translation by *Dr. S. K. Belvalkar* in the report of the III Oriental Conference, Madras, 1924, pp. 31 ff. The subject-matter of the Upaniṣad is a conversation between the sages Viśvāmitra, Jamadagni, Bharadvāja, Gautama and Vasiṣṭha regarding the true nature of *Brahman.*

9. See, for instance, *Ch. Up.,* Chap. VII; *Muṇḍaka Upaniṣad,* I. 1. 9.

10. *Chāndogya Upaniṣad,* III. 19. 11. Ibid. III. 13. 8; *Bṛ. Up.,* VI. 9.

12. Ibid. I. 1; *Praśna Upaniṣad,* V. (1-7); *Muṇḍaka* II. 3 ff.; *Taittirīya* I. 8. and so on.

13. Śaṁkara on *Chāndogya Upaniṣad,* VI. 2. 1.

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Sat, nor *Asat,*[14] that it is composed of consciousness *(Cit),*[15] and Bliss *(Ānanda).*[16] It is also usual to describe *Brahman* as of unknowable essence,[17] as of a negative character, as causeless,[18] and as devoid of spatial[19] and temporal[20] limitations.

By the term *Ātman* what is usually understood in the Upaniṣads is the individual Self of man, stripped of all that is in him which is Non-Self, which is temporary, which is perishable, which came from without, and which is subject to the limitations of Time and Space.[21]

Inasmuch as both the terms *Brahman* and *Ātman* denote the "First Principle" in the universe, a promiscuous employment of them is sometimes made in the Upaniṣads. Thus the *Chāndogya Upaniṣad* (V. 11) says that five great house-holders, deeply learned in sacred lore *(Śrotriyāḥ),* met together and formulated the question "Who is Ātman? What is Brahman?" *(ko nu ātmā, kim brahmeti).* We find here that in a common text the two terms stand side by side almost in a synonymous relation.[22]

It is the object of this paper to see how much of this meaning of these *two* words was known to the Ṛgvedic seers. The term 'Brahman' occurs in the Ṛgveda both in masculine and neuter; in the former gender it occurs 24 times and, in the latter, 91 times.

The masculine form of Brahman *(Brahmā)* is not found in Maṇḍalas III and VI of the Ṛgveda; it occurs *once* each in Maṇḍalas V and VII, 2 times in Maṇḍala II, 3 times each in Maṇḍalas I, IV, IX, and 5 times each in Maṇḍalas VIII and X. *Twelve* times[23] the word Brahmā is used in the sense of the Brahmin Singer *(Brāhmaṇaḥ stotā), four* times[24] in the sense of the 'Great or Mighty *(Parivṛḍhaḥ), once*[25] in sense of the 'Creator' *(Prajāpatiḥ), once*[26] as a name of

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14. *Ch. Up.* III. 19. 1; *Taitt. Up.* II. 7; *Bṛ. Up.* II. 3.1.
15. See, for instance, *Bṛ. Up.,* IV. (3-4). 16. See, especially, *Taitt. Up.* II. 2. 17. *Ch. Up.,* VIII. 1. 5 etc.
18. Especially, see, *Bṛ. Up.,* IV. 4. 20.
19. *Bṛ Up.,* III. 8. 7.; IV. 2. 4, etc.
20. See, especially, *Bṛ. Up.* IV. 4. (16-17).
21. *Ch. Up.* IV. 15; V. 16; V. 10. 3; V. 10. 8; *Bṛ. Up.* IV. 4. 5 etc.; *Kaṭh. Up.* I. 1. 20 etc.
22. Cp. Deussen, *Philosophy of the Upaniṣads,* p. 86.
23. Rv. I. 80. 1; IV. 50. 8; V. 40. 8; VIII. 7. 20; VIII. 33. 19; 64. 7; 92. 30; IX. 112. 1; 113. 6; X. 85. 34, 35; 117. 7.
24. I. 158. 6; IV. 58. 2; VII. 7. 5; VIII. 16. 7.
25. I. 164. 35. 26. II. 1. 3.

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Bṛhaspati, *five* times[22] in the sense of the *Brahmā* priest, and *once*[28] in the sense of 'Prayer'.

The form *brahmáṇaḥ* occurs 8 times ; *once* (I. 10. 1) in the sense of the 'sacrificial priests', *once* (V. 31. 4) in the sense of 'Aṅgirases' or 'Maruts', *once* (V. 32. 12) in the sense of the 'mighty' *(Bṛhantaḥ)*, and *five* times[29] in the sense of the 'Brahmin Singers' *(Brāhmaṇāḥ stotāraḥ)*.

The form *brahmāṇaḥ* occurs but *once* (V. 29. 3) in the RV., and Sāyaṇa understands by it the 'Great or Mighty' *(Bṛhantaḥ)*; and the word *brahmáṇeva* (Pp. *brahmáṇā-iva)* which also occurs only *once* (II. 39. 1) is taken by Sāyaṇa to mean 'Brahmins'.

The masculine form of 'Brahman' in the objective case *(Brahmāṇam)* occurs 5 times ; *twice* (VI. 45. 7 ; X. 77. 1) it is taken by Sāyaṇa to mean the 'Great or Mighty', *twice* (X. 125. 5 ; X. 141. 3) in the sense of the 'Creator' *(Prajāpatiḥ* or *Sraṣṭā)*, and *once* (X. 107. 6) in the sense of 'Brahmin'.

The occurrence of the word *brahman* in the neuter is more abundant ; its nominative singular form *(brahma)* occurs 97 times ; 57 times[30] it is used, according to Sāyaṇa, in the sense of 'Prayer' *(Stotram* or *Śastram)*, 22 times[31] in the sense of food, sacrificial or ordinary *(Annam* or *Haviḥ)*, *once* (X. 114. 8) in the sense of the 'cause of the Universe' *(Jagatkāraṇam vastu)*, 6 times[32] in the sense of a 'Great Act' *(Parivṛdham karma)*, *twice* (VIII. 35. 16 ; VIII. 37. 1) in the sense of 'Brahmin', *once* (IX. 67. 23) in the sense of the 'body' *(Putrādivardhanakāri śarīram)*, *once* (IX. 71. 1) in the sense of the 'great' *(Bṛhat)*, and *once* (X. 61. 7) in the sense of 'Rudra'.

In the possessive case the word occurs 37 times ; 33 times[33] it occurs as part of the compound word *Brahmanaspatiḥ*, *once* (III. 29. 15) in the sense of the 'Generator of the Universe' *(Sarvasya jagatas sraṣṭuḥ)*, *once* (VIII. 97. 3) in the sense of 'food' *(Annasya)*, *once* (VI. 52. 3) in the sense of 'prayer' *(Mantrasya karmaṇaḥ)* and *once* IX. 97. 34) to mean 'Great' *(Parivṛdhasya)*.

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27. II. 1. 2 ; IV. 9. 4 ; IX. 96. 6 ; X. 52. 2 ; X. 71. 11.

28. VIII. 31. 1. 29. VII. 42. 1 ; VIII. 17. 3 ; VIII. 96. 5 ; X. 85. 3, 16.

30. I. 62. 13 ; 75. 2 ; II. 20. 5 ; 34. 7 ; III. 41. 3 ; 53. 12 ; 13 ; IV. 6. 11 ; 16. 20 ; V. 29. 15 ; 42. 2 ; VI. 17. 3 ; 35. 1 ; VII. 24. 4 ; 28. 2 ; VIII. 24. 1 ; X. 61. 1 and so on.

31. I. 10. 4 ; II. 41. 18 ; III. 8. 2 ; IV. 22. 1 ; VI. 16. 36 ; VII. 31. 11 ; VIII. 3. 9 ; X. 4. 7. etc :

32. I. 105. 15 ; 129. 4 ; 152. 5 ; 152. 7 ; VIII. 69. 9 ; IX. 86. 41.

33. I. 18. 4 ; II. 23. 19 ; V. 46. 3 ; VI. 75. 17 ; VII. 44. 1 ; VIII. 27. 1 ; X. 53. 9 etc.

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Similarly, the form *brahmáṇaḥ* occurs 2 times, *brahmaṇaḥ* 15 times, *brahmaṇā* 31 times, *bráhmaṇām* 2 times, *brahmáṇām* once, *bráhmaṇi* and *brahmáṇi once* each, *bráhmaṇe* 9 times, *brahmáṇe* 2 times. Besides these independent occurrences noticed here, the word *brahman* occurs many times as part of compounds like *brahma-kilbiṣe, brahma-dviṣaḥ, brahma-kāraḥ,* and *brahma-yujā.* In all these places the word is used in one or the other of the senses mentioned above.

Some forms of the word *brahman* occur in the *Nirukta* also ; the masculine form in the nominative singular occurs *once* (I. 8) and is taken by Yāska to mean 'a priest'; the neuter form in the same case and number occurs twice, and is used *once* (II. 11) to mean a 'Brahmin' and the other time (VI. 22) to mean 'prayer'; the nominative plural of the masculine form occurs *twice* (V. 5 ; XI. 4) and in both the contexts it is taken by *Yāska* to mean 'Brahmin', and the neuter form in the same case and number occurs but *once* (XII. 34) in the *Nirukta* and is understood as 'prayers' *(karmāṇi);* in the vocative singular, the masculine form occurs *twice* (II. 4 ; V. 14) and *Yāska* takes it to mean 'O ! brahmin'.

So much for the meaning of *brahman* in the Ṛgveda as interpreted by Indian commentators. We will now see the meanings given to the word by European scholars. *Martin Haug*[34] derives *brahman* from the root *'bṛh'* (originally *barh)* which, according to Sanskrit grammar means 'to grow', 'to swell', so that the original meaning of the word is 'that which grows or swells,' and a proof of this is seen by him in the corresponding Avestan word *barəšma* which means a bundle of twigs used by the Parsi priests when performing the Izeshan sacrifices. He next assigns to *brahman* the more abstract meaning of growth and welfare, and what causes them both, viz. sacred songs. Lastly, he understands by *brahman* 'the productive power in nature, which manifests itself in the growth of plants, and all other creatures'. "When by a well-known grammatical process this neuter *bráhman* (nom. *brahma)* is changed into the masculine *brahmán* (nom. *brahmā),* it comes to mean a man conversant with Brahman, a member of the priestly class ; secondly, a priest charged with the special duty of superintending the sacrifice, but likewise the personal creator, the universal force conceived as a personal god, the same as Prajāpati, and in later times one of the Trimūrti, *Brahman, Viṣṇu,* and *Śiva."*[35]

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34. Introduction to the *Aitareya Brāhmaṇa,* p. 4 n. ; *Brahman und die Brahmanen,* cited by F. Max Müller, *Theosophy* (Gifford Lectures, 1892), p. 240 ff.

35. *Max Müller,* Ibid.

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Osthoff[36] connects *brahman* with the Old Irish word *bricht* which means 'magic, magic formula', and finds following in *Oldenberg*[37] and *Hillebrandt*;[38] the latter, however, follows *Haug*[39] also in understanding *brahman* as the latent electric power stirred up by such apparatus as the sacred vessels, or hymns, or chants, at the time of the performance of a ceremony. *Hertel* ("Das Brahman" in *Indogerman. Forschungen*, 41, 1923, pp. 185 ff)[40] connects *brahman* with Latin *flagro* and attempts to prove that the original meaning of *Brahman* was "Fire", both the internal fire in man and the cosmic fire.

According to *Muir*,[41] *brâhman* in the neuter is generally used in the sense of prayer or hymn, while the masculine form of the word denotes 'the person who composes or repeats a hymn or prayer.' This original meaning of the masculine form later changed, according to Muir, when the ceremonial became more complicated and a division of sacred functions took place, and the word came to be employed more generally at first for a minister of public worship and later, to signify one particular kind of priest with special duties.[42]

To *Deussen*[43] the word *brahman* means, in the whole of the Rgveda, nothing more than the 'lifting and spiritualising power of prayer.'

Max Müller feels that though the idea of creative force or propelling power might well have been expressed by *brâhman*, the neuter word, taken to mean 'hymn or prayer' should have had originally the more general meaning of 'speech or word'.[44]

The *St. Petersburg Lexicon* of Roth and Böhtlingk gives *six* meanings of the word *brâhman* which is derived here also from the root *barh*; the first meaning given here runs *'Die als Drang und Fülle des Gemüths auftretende und den Göttern zustrebende Andacht'* which paraphrased means "the devotion which appears as the craving and fulness of the soul and devotional urge towards the gods"; the second meaning is 'a sacred or magic formula' *(heiliger Spruch)*; then 'sacred words' *(heiliges Wort)*, as opposed to words used for ordinary purposes; then 'sacred wisdom' *(heilige Weisheit)* and 'holy life' *(heiliges Leben)*, and lastly, the absolute or impersonal god *(Der höchste*

36. *Bezz. Beitr.*, 24, 1899, 113 ff., cited by *Winternitz*, History of Indian Literature, Vol. I, p. 247.
37. Winternitz, *Ibid.* as in his *Lehre der Upanishaden*, pp. 44 ff.
38. ERE., II. 796 ff.
39. Supra.
40. *Winternitz*, loc. cit.
41. *Original Sanskrit Texts*, I. 241 ff.
42. Muir, *op. cit.*, p. 243.
43. *System of Vedanta*, p. 49.
44. *Gifford Lectures*, 1892, pp. 241 ff; *Six Systems of Indian Philosophy* pp. 53-55.

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Gegenstand der Theosophie, der unpersönlich gedachte Gott, das Absolutum).

In the opinion of *Winternitz*[45] these explanations are diametrically opposed to the Indian conception of the relationship between gods and men, however much they may correspond to Jewish-Christian ideas of divinity. Any attempt at etymological derivation of the word *brahman* is, to him, futile. His own view is that, among the numerous occurrences of the word in the Veda, 'there is nowhere any thought of devotion or exaltation to the divine'; it always means mere formulae and verses containing secret magic power, by which man desires to influence divine beings, or to obtain, or even to force something from them. Later, when divine origin was ascribed to the Veda, when the sacrifice itself was conceived as a superhuman, nay super-divine power, this *brahman* or sacred knowledge came to be called the first created thing *(brahma prathamajam)*, and finally even made the creative principle, the cause of all existence *(brahma svayambhu)*. Brahman as the divine principle is thus a conception of the priestly philosophy, and is quite explicable in the light of the Brahmanical views upon prayer and sacrifice.

Ātman occurs altogether 22 times in the Rgveda ; in the nominative case the word appears 15 times ; it is used 7 times[46] in the sense of 'Essence' *(Svarūpabhūtaḥ)*, twice (I. 162. 20 ; VII. 101. 6) in the sense of 'body' *(Dehaḥ)*, once (I. 164. 4) in the sense of 'Intelligent Principle' *(Cetanaḥ)*, once (VII. 87. 2) to denote 'controller' *(Dhārayitā)*, twice (VIII. 3. 24 ; IX. 85. 3) in the sense of 'oneself' *(Svayam)*, once (X. 16. 3) to denote 'breath' *(Prānaḥ)*, and once (I. 73. 2) the 'blissful Soul'; in the objective case the word occurs *four* times ; twice (I. 163. 6 ; X. 97. 8) it denotes the 'body', once (X. 92. 3) the 'essence' *(Sāram)*, and once (X. 97. 4) to denote the 'self'. In the possessive case, the word *Ātman* occurs twice (X. 163. 5, 6.) and on both occasions it signifies 'body'; in the locative case it occurs once (IX. 113. 1) and denotes 'oneself'.

Besides these, the word occurs as part of compounds like *Ātmadāh*, *Ātmanvat*, and *Śatātmā* ; in the first compound it means 'Soul', 'himself',[47] or 'vital breath',[48] 'essence' or 'strength' in the second, and 'multiplicity', or 'years' or 'offspring' in the third.

The form *Tman* occurs 73 times in the Rgveda, and denotes

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45. Winternitz, *op. cit.*, pp. 248 ff.
46. I. 34. 7 ; 115. 1. ; IX. 2. 10 ; 6. 8 ; X. 97. 11 ; 107. 7 ; 168. 4.
47. Mahīdhara on *Vājasaneyi Saṁhitā*, XXV. 13.
48. Griffith, *White Yajurveda*, p. 226.

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'oneself' *(Svayam)*, 'one's grace' *(Svīyānugrahabuddhiḥ)*, 'alone', or the 'soul' *(Jīvam)*.

In the *Nirukta*, the word *Ātmā* occurs 10 times and is always interpreted by *Yāska* as the 'Soul'.

As regards the meaning of *Ātman*, according to some European scholars it is etymologically connected with the German word "Atmen" and derived from the root *'An'* 'to breathe'[49]; Deussen[50] thinks that the word must have originally meant 'This I' *(Dieses Ich)* and derives it accordingly from two pronominal roots. *Winternitz*[51] relies upon the usage of the word in Indian Literature and remarks that "it is often used as a reflexive pronoun and as a substantive denotes one's own person in contrast to the outside world, sometimes the trunk in contrast to the body." *Max Müller*[52] prefers "to translate *Ātman* by "Self", that is the true essence of man, free, as yet, from all attributes." The *St. Petersburg Dictionary*[53] and *Grassmann*[54] both mention *"Hauch"* (Breath) as the first meaning of *Ātman*.

Summing up the views advanced above by scholars, both Indian and European, we have the following meanings of the words *brahman* and *Ātman;* the former in the masculine may mean the 'Brahmin singer', or 'great', or 'prayer', or 'creator', or 'Brhaspati', or the 'Brahmā priest'; it is used sometimes to denote any 'sacrificial priest' in general, or 'Aṅgirases or Maruts'; in the neuter, the word means 'prayer', or 'food' or 'great act', or 'Brahmin', or 'cause of the universe', or 'body', or 'great', or 'Rudra'. According to some European scholars who attempt to derive *brahman* etymologically, it means also 'the latent electric power stirred up by such apparatus as sacred vessels, hymns etc.', or 'fire' (internal in man and cosmic), or 'speech' or 'word'. *Ātman* means 'essence', or 'body', or 'intelligent principle', or 'controller', or 'oneself', or 'breath', or 'blissful', or 'strength', or 'multiplicity' or 'offspring', or 'years'; according to the majority of European scholars, 'breath' is the first meaning of *Ātman*.

It has now to be judged to what extent these meanings of *brahman* and *Ātman* in the Rgveda represent the sense in which they were understood by the Upaniṣadic seers. We have already seen above that the Upaniṣads very frequently speak of *brahman* being composed of 'knowledge' *(Cit)* and 'bliss' *(Ānanda);* the Ṛgvedic seers seem to be

49. Winternitz, *op. cit.*, p. 249; Max Müller, *Gifford Lectures*, p. 249.
50. *Allgemeine Geschichte der Philosophie*, I. 1, p. 285.
51. Winternitz, *loc. cit.*,
52. Max Müller, *Gifford Lectures* (1892). p. 249.
53. *Sanskrit-Wörterbuch* by Roth and Böhtlingk, p. 621.
54. *Wörterbuch zum Ṛg-veda*, p. 175.

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quite aware of these two attributes of *brahman;* in one stanza, the seer asks 'Who has seen the primeval (being) at the time of his being born? From earth are the breath and blood, but where is the soul? Who may repair to the sage to ask this?' *(Kó dadarśa prathamáṁ jáyamānam asthanvántam yád anasthá bibharti / bhúmyā ásur ásṛg ātmá kvà svit kó vidvámsam úpa gāt prástum etát //* (RV. I. 164. 4). In this verse *Ātman* is understood as the thinking or intelligent principle *(pañcabhūtātmakaśarīrasambaddha cetanaḥ)* which, though connected with the gross and subtile form, is nowhere perceptible as a separate object. In RV. I. 73. 2 the seer exhorts that Agni is to be cherished for, like Soul, he is the source of happiness *(Ātméva śévo didhiśāyyo bhūt).* We have here the later Upaniṣadic idea that 'blissfulness' *(niratiśayānandaṣvarūpatvam)* is the nature of *Ātman* (Soul).

Similarly, the Upanisadic meaning of *Ātman* that it is the 'essence' of the body, that it is the 'controller' is already familiar to the Ṛgvedic seers for, as mentioned above,[55] *eight* times at least the word *Ātman* denotes in the Ṛgveda that which is the essence *(sārabhūtaḥ* or *svarūpabhūtaḥ)* and is used once (VII. 87. 2) to denote the 'controller' *(dhārayitā).* In this latter verse, the seer addressing Varuna says *"Ātmā te vātaḥ"* and *Sāyana* interprets the verse saying that *Vāta* (Wind), as directed by Varuna, is the controller *(Ātmā)* of all beings.

So far attempt was made to point out that some Upanisadic conceptions of *brahman* and *Ātman* are to be found even in the Ṛgveda. It also seems possible to see the survival of certain Ṛgvedic ideas about *brahman* in the Upanisads themselves. Before making such an attempt, it is first necessary to understand that the Upanisads are nothing more than the proceedings of the different philosophical debates and discussions under different auspices in ancient India. We will have then to admit also that the Upanisads represent no single view about *brahman* or *Ātman*, but a set of views held by different thinkers of repute in those times.[56] It may be that in various discussions the ablest debator was able to rule the day, but this should not make one think that his was the only view that was ever brought forward.

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55. Supra, n. 46.

56. Cf. R.E. *Hume* who says that "the Upanisads are no homogeneous products, cogently prescribing a philosophic theory, but ... are compilations from different sources recording the 'guesses at truth' of the Early Indians. A single, well articulated system cannot be deduced from them" *(The Thirteen Principal Upanishads,* p. 9). For a lucid and interesting account of these thinkers and their theories, see B. Barua, *Pre-Buddhistic Indian Philosophy,* pp. 92 ff.

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According to *Hertel,*[57] 'brahman' is etymologically related to the latin word 'flagro' and should mean 'fire'. If this etymology be acceptable and *brahman* in the Ṛgveda can have 'fire' as one of its meanings then we can see a survival of this meaning when, in *Bṛhadāraṇyaka Upaniṣad* (II. 1), *Bālaki Gārgya* gives one of the alternative definitions of *brahman* as the 'person in fire' *(agnau puruṣaḥ)*. Similarly, *Max Müller's* view[58] that *brahman* should originally have meant in the RV. 'speech or word' corresponds to the view of *Jitvan Śaivalinī* who, according to the *Bṛhadāraṇyaka Upaniṣad* (IV. 1) is reported to have told King Janaka of Videha that *brahman* is *vāk,* though Yājñavalkya refutes this view later in the same tract of the Upaniṣad. Could these two instances be taken as evidences to show that though here and there a *Yājñavalkya* or an *Ajātaśatru* or an *Aśvapati* may propound and establish an advanced view, there were people, even in Upaniṣadic times, whose views about *brahman* and *Ātman* were not different from those prevailing in earlier ages?

Whether this proposition is acceptable or not,[59] it seems safe to conclude that the germs of the Upaniṣadic *brahman* or *Ātman* are found in times even so far back as the Ṛgvedic period, and that the attempts made by some scholars to prove that Upaniṣadic speculation is purely of non-Brahmanical origin[60] are mere vague guesses unsupported by any kind of internal evidence.

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57. See Supra. 58. See Supra.

59. Cf: *R. E. Hume* who observes: "In the Ṛgveda, *brahma* seems to have meant first 'hymn', 'prayer,' 'sacred knowledge,' 'magic formula'. In this very sense it is used in the Upaniṣads, e.g. *Taitt.* III. 10. 4, as well as in compounds such as *brahmavat,* 'possessed of magic formulas', and *brahmavarcasā,* 'superiority in sacred knowledge'" *(op. cit.,* p. 14).

60. For a statement as well as complete refutation of this view held by scholars like Deussen, Garbe, and Winternitz, see *Maurice Bloomfield's* 'Religion of the Veda', pp. 220 ff. Supporters of this view usually cite instances of kings like Ajātaśatru, Aśvapati, who refuted the views advanced before them by several Brahmin scholars. But as an instance to support the contradictory proposition, the case of the great Upaniṣadic seer Yājñavalkya, whose views predominated most in the Upaniṣadic period, may be mentioned. The only safe conclusion in this respect seems to be that, while sacrificial rites etc. were restricted to men, and among them to Brahmins only, philosophical disquisitions and deliberations were thrown open to others as well—to *kṣatriyas* like King Janaka and Aśvapati, to Śūdras like Raikva, the carter, and to women like Gārgī and Maitreyī; cp. *F. E. Pargiter (Ancient Indian Historical Tradition,* p. 59) who believes in the existence of two distinct traditions in ancient India.

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RELATION OF BRAHMAN AND JAGAT

By P. M. Modi

In this paper, the author proposes to examine the relation of cause and effect, Brahman and the world, in the light of the Brahmasūtra. Elsewhere he has shown that this relation is the relation of identity *(ananyatva)* and that this identity means complete identity i.e. identity in *all* the attributes of Brahman, viz., Being, Consciousness and Bliss and other attributes on the strength of Bra. Sū. II. 1. 14-20. It has been proved by us elsewhere that the Sūtrakāra does not believe in "the identity in different"; he does not hold that the world is identical with Brahman only so far as the Being of Brahman is concerned; it is identical also in points of Consciousness and Bliss. It is proposed to give here further evidence for this nature of the identity *(ananyatva)* from the Brahmasūtra and also to study why the Consciousness and Bliss are not perceived in the world if the latter possesses them.

As regards the presence of Consciousness in the world, which is the effect of Brahman, Bra. Sū. II. 1. 4-6 contains an important piece of information.[1]

According to all traditional interpretations including those of Śaṅkara and Rāmānuja, these Sūtras admit that the world being without consciousness is different in nature *(vilakṣaṇa)* from Brahman and admitting this difference as real, the Sūtrakāra in Sūtra 6 is believed to say that 'We see in the world that the relation of cause and effect subsists between two things of quite opposite nature, e.g. the scorpion coming out of cow-dung and the hair coming out of a living person.' In our opinion, these Sūtras reject the view that the world is without Consciousness by refuting the Opponent's interpretation of the Śruti (Tai. Upa. II. 6)[2] to which he refers in Sūtra 4 and by pointing to a Śruti which definitely shows that the created world possesses Consciousness. Without reproducing the interpretation of any commentator, we shall give our own interpretation of these Sūtras and the arguments for the same.

Sūtra 4. The Opponent may say: "Brahman is not the cause

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1. न विलक्षणत्वादस्य तथात्वं च शब्दात्। (Bra. Sū. II. 1. 4)
2. विज्ञानं चाविज्ञानं च। Tai. Upa. II. 6.

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of the world *(na)* because the world, the effect, in question, being inanimate and without consciousness is different in nature *(vilakṣaṇa)* from Braman ; and the fact that this (world) is such, can be proved from the Word." The Word here means the evidence of Tai. Upa. II. 6, viz., "It became knowledge *(vijñāna)* and non-knowledge *(a-vijñāna)*." Brahman became *avijñāna* or *jaḍa*, 'the world devoid of consciousness.'

The *viṣayavākya* referred to by *śabda* in the Sūtra is pointed out to be Tai. Upa. II. 6 by most of the Ācāryas and we also hold that it is a correct reference.

Sūtra 5. According to the Ācāryas, this is a Pūrvapakṣa ; we take it as a Siddhāntasūtra. The Ācāryas hold that Sūtra 5 refers to Śrutis other than Tai. Upa. II. 6 which is the *viṣayavākya* of Sūtra 4. In order that these new Śrutis[3] may be put into the mouth of the Opponent Madhva introduces a new Sūtra *(dṛśyate tu)* between Sūtras 4 and 5 of Śaṅkara's Pāṭha. In our opinion, Sūtra 5 refutes the Opponent's view about Tai. Upa. II. 6, the very text he quotes as evidence in Sūtra 4.

This Sūtra (5) is a Siddhāntasūtra. The Sūtrakāra says : But Tai. Upa. II. 6 *(vijñānaṁ cāvijñānaṁ ca)* is a statement of the presiding deity (or deities) (a) because these two *(vijñāna* and *a-vijñāna)* are different from the creation created by Brahman after practising penance and (b) because Brahman has entered the created world and then became *vijñāna* and *avijñāna.*

If Brahman becomes *vijñāna* and *a-vijñāna* after having entered the created world, then the *vijñāna* and *a-vijñāna* are *abhimāninī devtās,* the deities that preside over the world which Brahman has created and which It has entered into afterwards. In fact, they are not the same as created world itself.

Our reasons for taking Sūtra 5 as Siddhānta Sūtra are that (a) it contains *tu* which is the sign of a Siddhānta Sūtra, (b) there should be a reply to the Śruti referred to by the Opponent and we find it in Sūtra 5, (c) the two *hetus* (reasons) viz. 'difference' and 'entering' *(viśeṣa* and *anugati)* we find stated in Tai. Upa. II. 6, (d) the Śrutis like Bṛ. Upa. VI. 1. 7, I. 32 mentioned by Śaṅkara in his introduction to Sūtra 5, are so simple and clear that we do not think there was any difference of opinion between Bādarāyaṇa and his Opponent (a *smārta* Vedāntin) about taking them as referring to *abhimāninī devatās,* (e) moreover, if they were to be refuted, they ought to have been referred to in an earlier Sūtra by the Siddhāntin but there is no

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3. Vide Śaṅkara's introduction to his *bhāṣya* on Sūtra 5.

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such Sūtra, (f) none of the Ācāryas seems to us to have given a satisfactory interpretation of *"viśeṣa"*, and lastly (g) by the interpretation proposed by us we find that the Opponent's Śruti is refuted in Sūtra 5 and his assertion *(vilakṣaṇatva)* in Sūtra 6 as we shall explain below. So, Sūtra 5 is a Siddhānta Sūtra.

Sūtra 6. All commentators have taken *'dṛśyate'* as *'dṛśyate loke'*, but we suggest that *'dṛśyate'* must refer to what we *see* in the *Śruti* because such expressions as *darśanāt, darśayati, darśayatah,* etc., always refer to what is seen in the Śruti. Moreover, when the Opponent takes his stand on the Śruti (in Sūtra 4), it would be impossible that the Siddhāntin would argue on the strength of his worldly experience."[4]

The Śruti referred to by Sūtra 6 is very probably Chā. Upa. VI. 2, where the created elements, Fire and Water are, just in the fashion of *Sat* the creator, stated to have "thought" of becoming many *even before* the *Sat* entered Fire, Water and Earth as their presiding deity.[5] This is a clear proof that the created world has life and consciousness even when the Sat had not created it. Prof. Ranade and Prof. Belvelkar have also noticed that the same sentient activity of *īkṣaṇa* "thought" is here predicated of Tejas, Ap and Anna as that of the Sat and that, therefore, the created physical elements are according to this Śruti obviously sentient elements.[6]

If *dṛśyate* be taken to mean "It is seen *in the world*", the Sūtra would be no satisfactory answer to the Opponent. The argument of the hair coming out from the *living* man, though given by a Śruti, would, in our opinion, not be given by the Sūtrakāra who, generally, rejects such absurd arguments though found in the Scripture itself.[7] Moreover, when the Opponent says that the hair comes out from the *material part* of the living man, the argument of *"dṛśyate"* fails.[8]

The above interpretation of Sūtras II. 1. 4-6 would prove that these Sūtras aim at showing that the created world, according to the

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4. In our opinion the Opponent here belong to the Vedānta School of the Gītā, not to the atheistic Sāṁkhya.

5. Chā. Upa. VI. 2.

6. Vide Prof. Ranade and Prof. Belvelkar, The Creative Period, p. 436, where they have also refuted the view of Jacobi who was inclined to take *īkṣaṇa* even in the case of the Sat in a secondary sense.

7. E.g., he rejects *priyaśirastvādi* mentioned in Tai. Upa. II. 5. Vide Bra. Sū. III. 3. 12.

8. This has been admitted by Śaṅkara himself.

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Śruti, is a world possessed of consciousness and that, therefore, there is no difference in nature *(vilakṣaṇatva)* between the world and Brahman.

In Sūtra 7 the Opponent argues that the world was *a-sat* 'not *sat*.' To us, it seems that by that argument he wanted to prove that since the world was *a-sat* it was non-conscious because in Chā. Upa. VI. 2 it is the *sat* which is said to have "thought" *(aikṣata)*, i.e. as consciousness is predicated of the Sat, the *a-Sat* world would be devoid of consciousness according to the Opponent.[9]

Thus, the purpose of Sūtras 4-11 which form part of the *vilakṣaṇatva* Adhikaraṇa, is to show that the world is not different from Brahman and that therefore it is possessed of consciousness.

Sūtra 13, as interpreted by Śaṅkara, contains an argument from the Pūrvapakṣa that if the created world is *cetana* 'conscious' the world will become an 'experiencer' *'bhokta'* because every conscious being is an experiencer. The answer to this objection of the Opponent is that 'It may be as in the world.' This may refer to the example of some conscious beings, who are not *bhoktṛ* or, in other words, who are *bhogyas* in the sense that they are only serving the purpose of others and being used by others. Thus, there is no contingency of the *cetana* world becoming *bhoktṛ*.[10]

It is quite proper that after having maintained the view that the world is possessed of consciousness, the Sūtrakāra in Sūtra 14 asserts the identity of Brahman and the world ; and, therefore, this identity *(ananyatva)* must mean the identity not only of Being but also of Consciousness. Thus, the context of Sūtra 14 favours the interpretation that the non-difference *(ananyatva)* in the Sūtra is the nondifference regarding Being, Consciousness and Bliss and all other attributes of Brahman.[11]

As regards the *ānanda* aspect of Brahman being present in the world, it is pertinent to note that the fact that Brahman which is the cause of the world Ānanda[12] is emphasised in Tai. Upa. III. 6 and, as

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9. The commentators including Śaṅkara have lost sight of the fact that the argument of *a-sat* is given in order to prove the *vilakṣaṇatva* of the world from Brahman.

10. We do not think that the *doṣa* of the *bhoktṛ* becoming *bhogya* is intended by the Sūtrakāra to be considered under Sūtra 13. Vide Śaṅkara and Rāmānuja on the Sūtra.

11. In a paper published elsewhere, we have shown as stated at the beginning of this article, how the arguments in Sūtras II. 1. 14-20 prove the absolute identity of Brahman and the world, and we need not repeat them here.

12. आनन्दाद्ध्येव खल्विमानि भूतानि जायन्ते etc.

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the Sūtrakāra says, it is this Brahman which is the object of his inquiry (Bra. Sū. I. 1. 1).

The above inquiry about the relation of Brahman and the world shows that it is the relation of complete identity.

An Adhikaraṇa which throws further light on this identity of the cause and the effect is Bra. Sū. III. 2. 20-22. We have given our own interpretation of it elsewhere.[13] Here we give only that part of its meaning which pertains to the problem under consideration. From that Adhikaraṇa we learn that Brahman in the form of its effects or transformations which are also Brahman Itself,[14] undergoes increment and decrement or development and decay[15] *(vṛddhi* and *apakṣaya)* by lesser and greater degree of self-concealment. Thus, according to the terminology of the Vedānta of the Sūtrakāra the *prāṇa* is a transformation of Brahman and since all transformations are Brahman Itself, '*prāṇa* is Brahman Itself with *some* attributes (e.g. *ānanda)* of Brahman *concealed*[16] in it, while *manas* (Chā. Upa. VII. 1-14) is Brahman with more attributes of Brahman concealed in it than in *prāṇa*'. In the same way, the Light is Brahman with some attributes of Brahman concealed in it, while the Water is Brahman with some *more* attributes of Brahman concealed in it than in the Light.

This self-concealment of Brahman is due to *abhidhyāna* or *īkṣaṇa* (the determination) of Brahman to become many.[17] It may be added here that the individual soul is also Brahman and, according to the Sūtrakāra, he is not a transformation of Brahman,[18] though he

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13. In our book 'A Critique of the Brahmasūtra', which is already in the Press.

14. *tad ātmānam svayam akuruta*—Tai. Upa. II. 7 and *ātmakṛteḥ pariṇāmāc ca*—Bra. Sū. I. 4. 26.

15. Vṛddhi and Hrāsa, the fourth and the fifth states of an entity according to Yāska II. 2. 2.

16. *antarbhāva* in Bra. Sū. III. 2. 20 and *tirobhāva* in III. 2. 3.

17. *parābhidhyānāt tu tirohitam*—Bra. Sū. III. 2. 5.

तदभिध्यानादेव तु तल्लिङ्गात् सः । Bra. Sū. II. 3. 13.

18. Principal Das Gupta says that according to the Brahmasūtra "Both the jīva and the physical world evolve out of Brahman" and "On the spiritual side Brahman is transformed *(pariṇāma?)* into the *antaryāmin* (inner controller) and the jīva (soul)". Vide his Indian Idealism p. 161. On p. 160, he mentions "the created mundane souls." His view does not seem to us to be in agreement with the text of the Brahmasūtra. Cf. न आत्माऽश्रुतेर्नित्यत्वाच्च ताभ्यः । Bra. Sū. II, 3. 17.

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is Brahman in which the nature of Brahman is concealed due to Brahman's own determination.[19]

The aphorism of the Brahmasūtra which asserts the identity of Brahman and the world uses the word *ananyatva* (Bra. Sū. II. 1. 14). The sense of this word is disputed by the Ācāryas[20] as also by modern scholars. According to Sir Radhakrishnan, "To Bādarāyaṇa, *ananya* does not mean absence of difference or change."[21] He also notices the Sūtrakāra's arguments for *ananyatva*, when he says, "The instances of cause and effect given in the Chāndogya Upaniṣad are earth, gold and iron and things made of them and not rope and snake or shell and silver." We have shown that *ārambhaṇādiśabdebhyaḥ* refers to the arguments given by the Sūtrakāra himself in Bra. Sū. I. 4. 23-27 and one of those arguments is that the transformed Brahman *(kṛti,* effect of Brahman) in Brahman Itself just as an ornament of gold is gold itself. The Sūtrakāra emphasises *this* identity of the cause and the effect i.e. a complete identity of the two.

The change of Brahman is not like the change of milk into curds,[22] but it is like the change of the gold into a thing made of gold. In this sense the result of the change is also Brahman. The same is proved by the example of the piece of cloth, when folded and not folded. When we discuss the causality of Brahman according to the Brahmasūtra we must remember that the Sūtrakāra seems to mention the word *pariṇāma* in the sense in which it is used by Yāska, viz., in the sense in which it is astate followed by increment *(vṛddhi)* and decrement *(hrāsa* or *apakṣaya*—Bra. Sū. III. 2. 20). Therefore, *pariṇāma* means 'change of form only' or 'transformation.' *Pariṇāma* is not the change of substance or stuff of Brahman. Brahman changes Itself, and the change or effect is also Brahman and this latter (the effect-Brahman) increases or grows *(vardhate)* and decreases or decays *(apakṣīyate).* Therefore, this increment and decrement would be properly called evolution and involution. And, though the cause, or Brahman itself, never perishes, it may be said that the effect-Brahman perishes in the sense that it is dissolved into Brahman. This dissolu-

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19. पराभिध्यानात्तु तिरोहितं ततो ह्यस्य बन्धविपर्ययौ । Bra. Sū. III. 2. 5.

20. "While the commentators agree that the cause is *not different* from the effect, the nature of the identity of Brahman and the world is differently explained by them."—Sir Radhakrishnan, Indian Philosophy, Vol. II, pp. 437-438.

21. Indian Philosophy, Vol. II, p. 438.

22. The example of *kṣīra* is given in Sūtra II. 1. 24 only to show that the change of Brahman takes place of his own accord, without any external agency,

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tion may be called destruction of the effect, the last state *'antabhāva'* or *'vināśa'* according to Yāska.[23]

Another equally important point is that according to Sūtrakāra, though in *pariṇāma* or transformation the effect is totally identical with Brahman, the evolution and involution *(vṛddhi* and *hrāsa)* take place not by the development or manifestation of some form or attribute of Brahman *which was absent or latent earlier,* but by the *self-concealment* of Brahman in various degrees. It is also by Brahman's *self-concealment* that the individual soul gets transmigration (Bra. Sū. III. 2. 5).[24]

It may also be noted that in the case of the soul, his *original form becomes manifest* after it unites with Brahman in the state of liberation (Bra. Sū. II. 4. 1—*sampadya āvirbhāvaḥ),* while in the case of the world it is reabsorbed into Brahman when passing through its last (sixth) state viz., the state of destruction (Bra. Sū. II. 1. 5-6).[25]

The Sūtrakāra uses the word *vikāra* in the sense of 'effect', e.g. *yāvad vikāram tu vibhāgo lokavat* (Bra. Sū. II. 3. 7). The Bhagavadgītā also uses the word in the same sense.

The above-mentioned two points : (1) the use of the word *pariṇāma* in the sense of 'transformation' as distinguished from evolution, and (2) the doctrine of self-concealment of Brahman seems to us to have been overlooked by most of the modern writers on the Brahmasūtra.[26] Another point which also seems to have been not fully in-

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23. Cf. अपीतौ तद्वत्प्रसङ्गात्समञ्जसम्। (Bra. Sū. II. 1. 7).

न तु दृष्टान्तभावात्। (Bra. Sū. II. 1. 7).

An Opponent argues : If the world existed in Brahman before its creation, then, when the world will reabsorb, it will exist in Brahman (lit. Brahman will be possessed of *it—tadvat—'vat'* in the sense of possession). The reply is, "No, Because we find in the Śruti the last state (destruction) of the world. (So, it will not continue to exist in Brahman)."

24. Cf. प्रदेशादिति चेन्नान्तर्भावात्। (Bra. Sū. II. 3. 53) where अन्तर्भाव is given as an argument for the soul being only an appearance of Brahman.

25. Vide Note (23) above.

26. Both Principal Das Gupta (Indian Idealism, pp. 160-162) and Sir Radhakrishnan (History of Indian Philosophy, Vol. II. pp. 347-438) say nothing about the doctrine of self-concealment of Brahman, so prominent in the Brahmasūtra. They mention only the *pariṇāma* of Brahman and understand it as evolution or change, which is not the case as shown by us. They do not distinguish between transformation and evolution of Brahman.

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quired into is whether it is Brahman or its power or its attribute which develops.[27]

In our opinion, there is no mention in the Brahmasūtra of a power or an attribute of Brahman changing itself, though, of course, Brahman has powers and attributes on account of which it changes or rather creates the creation and performs various other functions. The reference to the powers and implements of Brahman in Bra. Sū. II. 1. 30 and to the attributes of Brahman in Bra. Sū. II. 1. 37 is in respect of Its being capable of creating the world or Its possessing all attributes required to create the world. But this would not necessarily mean that Brahman *changes* or that any attribute or attributes of Brahman change (and Brahman remains unchanged) when the creation takes place. In fact, there is no such statement in the Brahmasūtra, so far as we can make out. The only 'change' of the attributes of Brahman is of the nature of their being concealed by Brahman Itself. The attributes are modified neither, in the sense in which gold is changed into ornaments nor in the sense in which milk is changed into curds. So, throughout the origin continuation and reabsorption Brahman remains unchanged, concealment of the world meaning no real change. So, neither Brahman nor attributes of Brahman change at any time.[29]

That the above interpretation of the casuality of Brahman was the original interpretation of the Brahmasūtra seems to be very probable because Śaṅkara refers to one of his predecessors as having interpreted the Sūtras from this standpoint. This predecessor held that

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27. Rāmānuja and even some followers of Śaṅkara regarded *māyā* as a power of Brahman, which underwent a transformation when Brahman created the world.

According to Principal Das Gupta "He (Bādarāyaṇa) seems to have believed that the world was a product of a real transformation of Brahman, or rather of his powers and energies (śakti)." *Vide* his Indian Idealism, p. 160. Sir Radhakrishnan does not consider the question whether Brahman has powers which are transformed into the world (Indian Philosophy, Vol. II. pp. 437-438). He says that the world is a transformation of Brahman itself.

28. सर्वोपेता च तद्दर्शनात् is an answer to
उपसंहारदर्शनान्नेति चेत् etc. (Bra. Sū. II. 1. 24).
Note also सर्वधर्मोपपत्तेश्च। (Bra. Sū. II. 1. 37).

29. In Bra. Sū. I. 4. 23-27, the Sūtrakāra seems to hold that the Prakṛti of the Gītā Smṛti is Brahman itself, not a power of Brahman. So, Bādarāyaṇa does not believe that the world is evolved out of a power of Brahman; he holds that the world is directly created from and by Brahman Itself.

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the attribute of consciousness of Brahman becomes imperceptible *(avibhāvita)* when Brahman becomes the world, or, in other words, in the world which is the self of Brahman, the attribute of consciousness is concealed, imperceptible ; it was not imperceptible when the world was not produced. Śaṅkara states the view, and in a way, accepts it.[30]

We may briefly sum up the results as follows :—

(a) Bra. Sū. II. 1. 4-11 and II. 1. 13 show that, according to Bādarāyaṇa, the created world is *cetana*, 'possessed of consciousness.' He does not admit the *vilakṣaṇatva* 'difference-in-nature' of the world from Brahman, its cause.

(b) Chā. Upa. VI. 2-3 where *īkṣaṇa* is predicated of *tejas* and *ap*, is the authority on which Bādarāyaṇa relies.

(c) Bra. Sū. II. 1. 14-20, when interpreted in the light of the context of Sūtras II. 1. 4-11 and 13 declare the world to be identical *(ananya)* with Brahman in the sense that the world has *all* the attributes of Brahman. It is a complete identity of cause and effect.

(d) Bra. Sū. III. 2. 20-22 show that, according to the Brahmasūtra, *pariṇāma* means transformation, *vṛddhi* evolution, *hrāsa* involution and *antabhāva* or *vināśa* destruction ; and that evolution does not mean change of Brahman because *vṛddhi* and *hrāsa* in the form of its effects take place by the self-concealment of Brahman and not due to any change. *Pariṇāma* of Brahman also does not mean any change of the substance of Brahman.

(e) Again, the individual soul experiences transmigration because of the self-concealment of Brahman. In the Brahmasūtra, the doctrine of self-concealment of Brahman explains creation of the world and also the bondage of the soul. Self-concealment is one of the most prominent parts of the Sūtrakāra's System.

(f) Brahman has powers or attributes by which it creates the world and rules over it, but it is the Brahman itself and not the power

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30. Vide Śā. Bhā. on Bra. Sū. II. 1. 4 and 6.—

योऽपि कश्चिदाचक्षीत श्रुत्वा जगतश्चेतनप्रकृतिकतां तद्वलेनैव समस्तं जगच्चेतनमवगमिष्यामि । प्रकृतिरूपस्य विकारेऽन्वयदर्शनात् । अविभावनं तु चैतन्यस्य परिणामविशेषाद्भविष्यति ।.....तेनापि कथंचेच्चेतनाचेतनत्वलक्षणं विलक्षणत्वं परिहियेत । Also योऽपि चेतनकारणश्रवणबलेनैव समस्तस्य जगतश्चेतनतामुत्प्रेक्षते तस्यापि 'विज्ञानं चाविज्ञानं च' इति चेतनाचेतनविभागश्रवणं विभावनाविभावनाभ्यां चैतन्यस्य शक्यते एव योजयितुम् ।

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or powers, which are the cause of the world and which become concealed when the world evolves or involves.

(g) There is the evidence of Śaṅkara himself that before him the Brahmasūtra was interpreted to hold the view that the world is Brahman with its consciousness concealed.

If this were the Sūtrakāra's theory of causation, it would be more like that of Vallabha from among the Ācāryas, and, as Prof. Ranade, and Prof. Belvelkar say with reference to the interpretation of Chā. Upa. VI. 2-3 we may say that the different doctrines of Bādarāyaṇa can be brought into a harmonious combination after the manner of what is known as the "Śuddhādvaita" interpretation.[31]

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31. Vide the Creative Period, pp. 436-437.

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MOTHER-GODDESS CONCEPTION IN THE VEDIC LITERATURE

(Continued from p. 83 I.C. Vol. VIII, No. 1).

By NANI MADHAB CHAUDHURI

Among male deities Pṛthivī is associated with Indra, Agni, Maruts, Āditya, Soma and Dyaus as male. She is Indra's daughter[213]; again she is spoken of as surrendering herself to Indra like a loving wife[214]. She is the mother of Agni[215]. She is impregnated by the Maruts.[216] In very striking language it is described several times how Pṛthivī trembles with fear on the approach of the Maruts.[217] Mother Pṛthivī was impregnated by Āditya for the production of various crops.[218] She is also impregnated by Soma and as a result people obtain sons and grandsons.[219] When Dyaus is male he is the consort of Pṛthivī.[220] Among female deities she is associated with Aditi, Iḷā, Pṛśni and Uṣas. How she is identified with the first three has been referred to already. Uṣas is said to be her mother.[221] How Pṛthivī, Aditi and Pṛśni are identified with the cow has also been referred to above. Pṛthivī is the cow manifest in the universe *(gām apaśyad viśvarūpyām).*[222] She is the great mother, mother of Vanaspati, of trees and plants.[223] Her connection with the dead whom she receives back as a kind mother should be noted. Throughout the Ṛgveda Pṛthivī is remembered in her natural aspect. Her association with male deities has bearing on this aspect alone, that is, fertilisation of the earth. Her association with female deities culminates in her identification with the cow which is the universe. It is noteworthy that there is no trace of any attempt at representing her as an anthropomorphic deity, nor is her conception ever raised to an abstract plane.

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213. Rv. V. 42. 13.
214. Rv. V. 32. 10.
215. Rv. V. 1. 6; VI. 16. 35; X. 4. 3. etc.
216. Rv. V. 58. 7.
217. Rv. I. 37. 8; V. 59. 2; 60. 2. etc.
218. Rv. I. 164. 8.
219. Rv. IX. 74. 5.
220. Rv. I. 185. 2, 11.
221. Rv. V. 47. 1.
222. Rv. I. 164. 9.
223. References given above,

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The male deities with whom Aditi is associated most often are Mitra and Varuṇa ; next come Bhaga, Aryaman, Sūrya, Savitar, Indra, Dakṣa ; next come Soma, Vāyu, Viṣṇu, Pūṣan, Rudra etc. She is often invoked together with the Ādityas, mentioned as one body. In one place the Ādityas say that they will become Aditi.[224] Another male deity with whom she is intimately connected is Ṛta conceived sometimes as an independent deity,[225] sometimes used as an adjective.[226] She is the mother of Varuṇa and Mitra and Aryaman[227]; mother of the Ādityas,[228] of the Ṛtus,[229] of the gods.[230] She is the youthful mother of Indra, whom she bore under intoxication, and by whom she was made a widow ;[231] she is also the mother of Sūrya and of Dakṣa.[232] She is also called mother of the Rudras, daughter of the Vasus, a sister of the Ādityas, and daughter of Dakṣa.[233]

Female deities with whom she is associated are Pṛthivī, Svasti, Sindhu (personified), Pathyā Revatī, Sarasvatī and Uṣas[234] and the wives of the gods.[235] Identified with the cow she is fecundated by Soma ; as mother earth she bears the burden of the universe.[236] She is often invoked simply as mother, the great mother, mother true to Ṛta, mother of kings.[237] She is emphatically said to be without a rival and irresistible.[238]

She is prominently concerned with the removal of sin, sometimes alone, sometimes with Mitra and Varuṇa and sometimes with the Ādityas as a group. She gives wealth free from sin and hatred.[239] She is invoked frequently for protection from sin.[240] She releases men from the net *(jāla)* of the enemy or men filled with hatred.[241] She presides over Vrata free from hatred *(himsā)* along with Mitra and others.[242] She is invoked for protection from sin.[243] She is without

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224. Rv. VII. 51. 2 ; X. 52. 1.
225. Rv. IX. 86. 25 ; 77. 1 ; IV. 23. 8, 10 ; X. 85. 1.
226. Rv. IV. 42. 4 ; VIII. 25. 3.
227. Rv. III. 54. 10 ; V. 67. 1. VIII. 47. 9.
228. Rv. I. 72. 9.
229. Rv. VIII. 9. 12.
230. Rv. X. 63. 13, 17.
231. Rv. IV. 18. 8, 12.
232. Rv. X. 88. 11 ; 72. 4.
233. Rv. VIII. 101. 15 ; X. 72. 5.
234. Rv. I. 100. 19 ; IV. 55. 3 ; I. 98. 3 ; V. 51. 14.
235. Rv. X. 92. 14.
236. Rv. IX. 74. 5 ; I. 72. 9.
237. Rv. II. 30. 2 ; VIII. 25. 3 ; II. 27. 7.
238. Rv. VIII. 18. 6 ; VII. 40. 4.
239. Rv. I. 185. 3.
240. Rv. X. 36. 3 ; VII. 40. 4.
241. Rv. VIII. 67. 11.
242. Rv. VII. 66, 6,
243. Rv. X. 36. 3.

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enemy[244]; her Vrata suffers no interruption.[245] She intercedes with the gods for men. She is prayed to intercede generally with Mitra and Varuṇa for men.[246] The seer says, "O Goddess, dear to many people, if you grant protection nobody can do ill"[247]. She is also prayed to drive away enemies.[248]

It is found thus that Aditi is conneted more intimately with Varuṇa and Mitra among the Ādityas than other male deities. As in their case, an important trait in her conception is power to grant protection from sin. Her association with these two deities who are *dhṛtavratā* and *ṛtāvānā samrājā*[249] and with Ṛta proves the ethical, abstract nature of her conception. This evidence would point to the very early origin of Aditi among Ṛgvedic deities. As the mother of Mitra, Varuṇa and also of the mighty Indra her position is superior to that of the other goddesses in the Ṛgveda. This is recognised by the adjectives given her : she is *advayā*,[250] *anarvā*,[251] that is, without a rival and unobstructed or irresistible. Her epithets all-pervasive and all-finder[252] indicate her abstract character. Her harmlessness and superiority are indicated by her description as an immaculate cow and as one without enemy[253] and by the emphasis laid on the absence of hatred or *himsā* in her.[254] The reference to Aditi, identified with Pṛthivī, being fecundated by Soma Pavamāna may not or may be more than an illustration of the idea of her motherhood ; at any rate, it is to be noted that she is more often identified with the cow than with the earth.

Her relations with Rudra and Dakṣa deserve attention. Identified with Pṛśni she is called the mother of the Rudras, that is, the Maruts. She is invoked together with Rudra's wife in one place.[255] In another place it is said that for us, for animals, for men and for children Aditi distributes Rudra's medicines.[256] Aditi is seldom invoked together with Rudra. There is a good deal of difference between the two deities. Aditi is mild and harmless, without any indication of ill-will in her. Rudra is violent, terrible, malevolent and destructive of men, beasts etc.[257]However, Rudra is also a healer and

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244. Rv. II. 40. 6.
245. Rv. I. 166. 12.
246. Rv. VII. 93. 7 ; VIII. 48. 2 ; X. 12. 8.
247. Rv. VII. 18. 4.
248. Rv. VIII. 18. 7.
249. Rv. VIII. 25. 7, 8.
250. Rv. VIII. 18. 6.
251. Rv. VII. 40. 4.
252. Rv. V. 46. 6 ; X. 100. 1.
253. Rv. II. 40. 6.
254. Rv. VII. 66. 6.
255. Rv. X. 92. 11.
256. Rv. I. 43. 2,
257. Rv. II. 33. 11 ; I. 114. 7, 8,

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he possesses a thousand medicines.[258] Why of all deities Aditi alone should be called upon to distribute Rudra's medicines is not understandable from any statement in the Ṛgveda regarding her relations with this deity. Sāyaṇa's explanation that Aditi is here identified with Pṛthivī does not throw any light on the matter. The subordinate rôle assigned to the unrivalled and irresistible mother of the mighty Ṛgvedic gods in relation to a comparatively unimportant god like Rudra would suggest that there might have been a popular form of worship of Aditi in existence. Aditi's relations with Dakṣa are as curious as are the relations between Uṣas and Agni or Sūrya. She is both mother and daughter of Dakṣa. In another place it is said that Dakṣa's daughter holds Agni.[259] Here Iḷā is spoken of as the daughter of Dakṣa. Sāyaṇa interprets Iḷā as *bhūmi* or earth. Dakṣa's daughter holding Agni, Svāhā sacrificing for her husband—these are stray relics of myth which are later strung together to form a beautiful wreath.

A curious myth about Aditi and her sons is referred to in one place. It is said that Aditi brought forth eight sons. With seven of these she went to meet the gods while she cast aside Mārtaṇḍa. She brought forth Mārtaṇḍa to be born and to die.[260] In Ṛgveda II. 27 six Ādityas are mentioned, e.g., Mitra, Varuṇa, Aryaman, Bhaga and Dakṣa. In Ṛgveda IX. 114 seven Ādityas are mentioned but no names are given. In Rv. X. 72 we have eight Ādityas of whom only Mārtaṇḍa, who was cast aside, is named. The Taittirīya Brāhmaṇa names eight Ādityas among whom the name of Mārtaṇḍa does not occur. The Śatapatha Brāhmaṇa mentions twelve Ādityas who are the twelve months of the year.[261] The epic list of Ādityas does not mention Mārtaṇḍa.

The male deities with whom Uṣas is more intimately associated than others are Sūrya, the Aśvins and Agni. Her relations with all these three gods are anomalous. Sūrya : She is Sūrya's mother and again his daughter and finally his wife or mistress.[262] The Aśvins : She is the wife of the Aśvins. There was a chariot race among all the gods for the hand of Sūrya's daughter. The Aśvins won the race and Uṣas went in their chariot. This action was approved by all the gods.[263] She is also said to be their sister.[264] They live with her in the same way as two males in their sojourn abroad live with the same

258. Rv. VII. 46. 3.
259. Rv. III. 27. 9, 10.
260. Rv. X. 72. 8, 9.
261. Śat. Br. XI. 6. 3. 8.
262. Rv. I. 113. 2 ; I. 116. 17 ; 69. 1, 5 ; 92. 11 ; 152. 4.
263. Rv. I. 116. 17 ; 117. 13 ; 119. 5 etc,
264. Rv. I. 180. 2.

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wife.[265] Agni : She is Agni's daughter[266]; he generated Uṣas, the wife of Sūrya[267]; he created Uṣas, the wife of the Arya.[268] Again she is the mistress of Agni[269]; Agni is kindled by her,[270] she increases Agni, holds his might, goes towards him.[271]

She is associated also with Pūṣan, Bhaga, Soma, Indra, Vāyu and Rudra. She is the sister of Bhaga and Varuṇa[272]; she brought Bhaga to the singers.[273] It is said that the gods handed over Pūṣan to Sūrya's wife ; he is said to be Sūryā's lover.[274] Agni, Vāyu and Sūrya are said to have woven Uṣas[275]; Soma is said to have made the fate of Uṣas.[276] Again, Sūrya's daughter is said to have brought Soma from heaven.[277] Soma is said to run after Uṣas.[278] Soma and Indra are said to have brought forth Uṣas.[279] Again, Indra and Viṣṇu are said to have produced her.[280] The ancient fathers are also associated with her. The Āṅgirases are said to have made her flourish ; the Vasiṣṭhas are said to have animated Uṣas first with their hymns.[281]

Indra's relations with Uṣas are curious. He was concerned with the birth of Uṣas along with Soma, next together with Viṣṇu and finally alone.[282] In another passage it is said that the dawn-goddesses hasten their pace through fear of Indra but he is also said to have liberated her.[283] In the fourth maṇḍala there are several references to the defeat and death of Uṣas at the hands of Indra. She is given epithets which are not easily intelligible. She is rebellious, destructive or revengeful and Indra-less[284]. Indra is said to have sharpened

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265. Rv. VIII. 29. 8.
266. Rv. I. 71. 5.
267. Rv. X. 3. 2.
268. Rv. VII. 6. 5.
269. Rv. VII. 9. 1 ; X. 3. 3.
270. Rv. VII. 8. 1 ; I. 113. 9.
271. Rv. I. 70. 4 ; III. 14. 3 ; IV. 2. 19.
272. Rv. I. 123. 4.
273. Rv. VII. 41. 6.
274. Rv. VI. 55. 5, 4.
275. Rv. VII. 33. 7.
276. Rv. IX. 10. 5.
277. Rv. IX. 113. 3.
278. Rv. IX. 93. 1.
279. Rv. VI. 72. 2.
280. Rv. VII. 99. 4.
281. Rv. VII. 76. 4 ; 80. 1.
282. Rv. VIII. 69. 2.
283. Rv. VIII. 96. 1 ; IV. 19. 8.

284. It should be noted that the epithet "Indra-less" is given to the enemies of Sudās (Rv. VII. 18. 16) among whom there were both Āryas and Dāsas. It means therefore people who repudiated the Indra-cult. Applied to Uṣas it should mean that she repudiated Indra's claim to superiority.

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his weapon in order to destroy her.[285] He killed the daughter of heaven *(striyaṃ yaddurhaṇāyuvam badhīr duhitaram divaḥ).*[286] He crushed the great Uṣas, daughter of heaven.[287] He broke her chariot. Her broken chariot lay on the banks of the Vipāśā and she disappeared far off.[288] The destruction of her chariot is again referred to in Rv. X. 73. 6. In Rv. X. 61. 5-7 there is an account of the birth of Vāstoṣpati from the intercourse of father and his youthful daughter. Sāyaṇa explains that the father is Rudra and the daughter is Uṣas.[289]

Among female deities Uṣas is associated with Pṛthivī and Urvaśīs. She is the mother of Pṛthivī.[290] She seems to be identified with the Urvaśīs.[291] She is also identified with the cow.[292] She is the sister of Rātri.[293]

Anthropomorphic representation of goddesses in the Ṛgveda reaches its climax in the beautiful goddess of Dawn. There are three points to be noted in the physical representation of Uṣas, e.g. her youth and beauty, her forwardness and her virginity. Her personal charms are described again and again in language of extraordinary beauty. She is white-complexioned, perenially youthful, clad in white, of radiant beauty.[294] She is called Arjunī and Ahanā.[295] She appears before our eyes like a well-dressed young girl *(tanvī)* who has had her bath. She displays her charms like a well-dressed woman.[296] Her descriptions are sometimes thoroughly voluptuous. Smiling demurely she approaches Sūrya and bears her breasts to his view.[297] In Rv. I. 30. 20. Uṣas is asked, What mortal is there to enjoy thee? She is said to like sensuous enjoyment.[298] She is a bold, young girl who unfolds her charms like a danseuse.[299] She is, again, several times spoken of as a maiden. Her charms are maidenly; she looks like a maiden whose body has been rubbed and washed by her mother.[300]

Uṣas is a warlike goddess and there are many references to her martial aspect. She is invoked to destroy enemies; she drives them away, destroys those who are filled with hatred against the Vedic

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285. Rv. IV. 23. 7.
286. Rv. IV. 30. 8.
287. Rv. IV. 30. 9.
288. Rv. IV. 30. 10, 11.
289. Commentary on Rv. X. 61. 6.
290. Rv. V. 47. 1.
291. Rv. IV. 2. 18.
292. Rv. V. 1. 1; VIII. 101. 13.
293. Rv. I. 113. 3.
294. Rv. I. 113. 2, 7; V. 47. 1.
295. Rv. I. 49. 3; I. 123. 4.
296. Rv. V. 80. 5, 6.
297. Rv. I. 123. 10.
298. Rv. I. 123. 4.
299. Rv. VII. 80. 1; I. 92. 4.
300. Rv. I. 123. 10, 11; I. 152. 4; I. 119. 5.

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seers.[301] She is invoked to expel enemies and divide them.[302] The dawn goddesses are compared to warriors. References to hostilities between her and Indra have been already given.

She has a malignant aspect and uncomplimentary attributes are given her. She is cruel like a *vyādha's* wife.[303] She shortens men's life and gives infirmities.[304] But she also cures disease and removes evil dreams.[305]

Among her other attributes are the folowing : she is the mistress of the house,[306] mistress of earthly wealth,[307] creatrix of truthful speech, mother of speech, propagator of knowledge,[308] benefactresss of men, leader of men,[309] preserver of the universe,[310] nurse of men,[311] creatrix of food ; she has created food for the good of men[312] and she has given birth to things.[313] She is called *asura* and given two other attributes which connect her with other great Asuras like Mitra, Varuṇa etc. She has power to remove sin and power to help worshippers who are in debt.[314] The greatness of Uṣas is testified to repeatedly. She is the highest goddess above all,[315] a mighty goddess,[316] she is the mother of the gods and Aditi's rival.[317]

Two other descriptions of Uṣas should be noted. These descriptions refer obviously to the natural phenomenon which is personified in Uṣas. It is said that Uṣas was first dark and then became fair ; again, she emerged from black darkness ; naturally radiant and white complexioned she originated from darkness.[318] Next, it is said that she has her seat on the hills and again, that she comes from uplands.[319] These two descriptions are important and reference will again be made to them later. She is also described as being footless.[320]

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301. Rv. I. 48. 8 ; VII. 81. 6 ; IV. 52. 4 ; I. 48. 13.
302. Rv. I. 113 ; VII. 77. 4.
303. Rv. I. 92. 10.
304. Rv. Ibid.; VII. 39. 1.
305. Rv. I. 123. 1 ; X. 35. 6 ; VIII. 47. 14-18.
306. Rv. I. 124. 4 ; 48. 5.
307. Rv. I. 113. 7.
308. Rv. I. 92. 7 ; VII. 77. 2 ; V. 48. 2.
309. Rv. VII. 75. 2 ; I. 48. 10.
310. Rv. VII. 75. 4.
311. Rv. I. 123. 3.
312. Rv. VII. 79. 3.
313. Rv. IV. 5. 13.
314. Rv. X. 55. 4 ; 127. 7 ; 35. 3 ; I. 123. 3.
315. Rv. VII. 79. 3.
316. Rv. VII. 81. 4.
317. Rv. I. 113. 19.
318. Rv. I. 71. 1 ; 123. 1, 9.
319. Rv. VI. 65. 5 ; VII. 76. 2.
320. Rv. VI. 59. 4.

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From the above we find that some of the prominent mother-goddesses are 1) goddesses of war, 2) destructive and terrible-looking, 3) bountiful, granting wealth, food and progeny and 4) supporters of creatures, nurse of the universe, mother of all things, of men and of the gods. Of the four goddesses whose attributes have been examined, in the case of Sarasvatī and Uṣas alone is there an attempt at concrete representation. With all her greatness Aditi is a pale figure beside them. In the case of Sarasvatī it is her martial aspect described in vivid language that fills her conception with life. Why a river-goddess and goddess of truthful speech should be given such prominent martial aspect is not easily understood. If as the goddess of speech we connect her with the deity of the hymn X. 125, then this warlike character of Sarasvatī receives further emphasis, and what is a more important consideration in the light of later history, she is brought into connection with Rudra. "When Rudra prepares to destroy the enemy who hates hymns I string his bow". She appears more emphatically as a champion of people ; "I fight for men *(janāya)*". Sarasvatī has the dual aspect of a destroyer and a gracious giver of boons.

In the case of Uṣas several important facts have to be noted. The references to her relations with Indra given above are significant. The fight between Indra and Uṣas and the destruction of her chariot and herself at his hands cannot be fully explained as nature allegory and it would indicate the existence of rivalry between the two. May it mean that the rise of the cult of Indra put an end to or led to the decline of the worship of Uṣas ? Such a hypothesis would receive some support from the statement that as the mother of the gods she was a rival of Aditi who is *the* mother of the gods in the Rgveda. Frequent references to the maidenly charms of Uṣas and the statement that she is a mistress of Agni who is described as the lover of maidens indicate a conception of Uṣas as a virgin goddess. Her threefold relation with Sūrya as mother, daughter and wife is also significant and has parallel in ancient religions.[321] The statement that she is a mountain-goddess and comes from the uplands would definitely indicate her affiliation with the north.

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321. Horos the Egyptian sun-god is spoken of as the husband of his mother, i.e., Isis (History of the Egyptian Religion by C. P. Tiele, translated by J. Ballingol, London, 1882, p. 53.) Similarly Hathor sometimes identified with Isis was called the mother and nurse of Horos and at the same time his wife (Ibid. p. 59). Chem the Egyptian ithyphallic god was also called the husband of his mother (Ibid. p. 80).

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We have in Uṣas a composite conception of a goddess having an important position in the ritualistic religion of the Ṛgveda.There are several references to the antiquity of her worship in the Ṛgveda[322] and she is described as the first, all-pervading *(viśvavārā)*, mother of the gods etc., but it is not Uṣas but Aditi who is invoked as the All-Mother, recognised as the cause of life and identified with life itself. Aditi, however, is already a shadowy figure in the Ṛgveda and in the later literature she is well-nigh forgotten as an independent deity. In the Purāṇas she is merely the mythical mother of the gods. Uṣas, too, loses her high position in the later Vedas and by the time we come to the age of the epics she almost disappears. The reference to the rivalry between Aditi and Uṣas is significant. The reason of the rivalry was, probably, that Uṣas claimed the position of the mother of the gods, held by Aditi. This means that Uṣas was the young aspirant to the position held by an older goddess. Aditi is invoked as the mother of Varuṇa, Mitra, Bhaga, Dakṣa, Indra, the Ādityas etc. Now, Uṣas, though invoked as a mother, mother of the gods etc., is not specifically mentioned as the mother of any particular god, except Sūrya, who is also called her father and husband. This rival claim to a position of superiority already held by Aditi, the rebellion of Uṣas against Indra, and the use of such epithets in that connection against her as "revengeful", "murderous" etc., would definitely indicate conflict of cults old and new. It is to be noted that Uṣas is not identified in the Ṛgveda with any goddess or with the earth. She is called the mistress of the house, but there is no reference to her fertility or fecundation by any god. For a mother-goddess this sterility, so to say, and absence of any association with the earth, are certainly striking. It should be noted further that Uṣas and Aditi are never identified with one another in the Ṛgveda. In fact they appear to represent two independent, dissimilar conceptions of the mother-goddess. Aditi is the great mother of things, men and gods representing the cosmic order, identified in her fertility with the earth and in her harmlessness with the cow, free from all malice and violence, beneficent and full of forgiveness for the weak sinner. Uṣas is a mountain-born maiden goddess, glowing with youth and voluptuous beauty, bold and seductive, delighting in martial deeds and ambitous ; there is a touch of cruelty in her but she is, more prominently, a gracious, kind benefactress of men, mother, mistress and preserver of the universe. Between these two types we have the white-complexioned river-goddess Sarasvatī the tutelary deity of the five tribes, who is terrible and mighty in battle and is approached even

322. Rv. I. 48. 3, 14.

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by the gods on bent knees. She is the highest among mothers, goddesses and rivers.

Thus there are three clearly distinguishable types of mother-goddess in the Ṛgveda :

1. the type of beneficent, forgiving, kind and gentle mother represented by Pṛśṇi-Pṛthivī-Aditi ;

2. the type of virgin mother-goddess of martial spirit and voluptuous beauty represented by Uṣas ; and

3. the type of mother-goddess who is regarded as a tutelary or special guardian deity of a people represented by Sarasvatī. A tutelary deity of this type is held to preside over things most valued by the people worshipping her and granting them her special protection. In the case of Sarasvatī these valued things are truthful speech and knowledge. In later literature she becomes the mother of the Vedas.

We may now turn to the female deities in the later Vedic literature.

In the later Vedic literature a number of new female deities appear and some of the older female deities acquire new attributes. The importance of some of the new deities who emerge in view is not apparent at once ; they just appear and enter into the formative period so to say. When ages after they come to occupy high positions, having lost some of the old affiliations and acquired new affiliations during the turmoil that followed the Ṛgvedic period due to conflicts of cultures and races, ending in a slowly worked-out synthesis, difficulty is felt in recognising in them the obscure deities of an earlier age whose appearance was altogether unpretentious. Such goddesses are Umā, Ambikā, Śrī etc. A number of new minor female deities also appear who easily affiliate themselves to one or other of the older goddesses. Mention may be made of the female agricultural deities. The appearance of these new female agricultural deities shows that the apparently anomalous position in the Ṛgveda in which male deities are generally concerned with agriculture had altered to some extent. The cult of evil spirits who have to be propitiated had apparently spread and bands of new noxious spirits group round the familiar figure of Nirṛti. Cults scarcely noticed in the Ṛgveda become popular ; thus mention may be made of the cult of Sarparājñī who comes to be identified with the earth. The snake cult assumes an elaborate form in the Gṛhya Sūtras. Some of the famous Ṛgvedic goddesses begin to lose their high position ; mention may be made of Uṣas and Aditi. The most important thing in respect of mother-goddess worship in the later Vedic literature that calls for notice is, however, the appearance of the two new female deities Umā Haimavatī and Ambikā and their affiliation with Rudra.

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Umā appears in the Taittirīya Āraṇyaka and in the same text Rudra is invoked as Umāpati.[323] She is Umā Haimavatī in the Kena Upaniṣad.[324]The legend of her appearance is important. It is told that a beautiful young woman appeared before Indra and other gods and imparted divine knowledge to them *(vidāñcakāra brahmeti).* She was Umā Haimavatī. Haimavatī is interpreted as the daughter of Himavat or the Himalayas. Ambikā appears as the sister of Rudra in the Vājasaneyi Saṁhitā and Taittirīya Saṁhitā.[325] She is autumn in the Taittirīya Brāhmaṇa and in the Śatapatha Brāhmaṇa.[326] In the Taittirīya Āraṇyaka Rudra is called Ambikāpati.[327] We know nothing about the previous history of the beautiful, young goddess Umā Haimavatī who imparted knowledge to the mighty gods like Indra, Vāyu and Agni, but her rise to the position of the teacher of the gods could not have been sudden. It must be presumed that the cult of this mountain-born goddess must have been known long prior to this, though no light has been thrown as yet on this obscure chapter. As regards Ambikā she is an autumn goddess related to Rudra as early as Umā. According to Keith the name is derived from *Tryambaka,* a name given to Rudra in the Ṛgveda.[328] Arbman explains the name as having three mothers and tries to connect Rudra with the cult of mothers in mediæval India.[329] This view is rejected by Keith who explains Tryambaka as connected with three seasons or three worlds.[330] What, however, most concerns us here is that both these goddesses who emerge into notice in the later Vedic literature are affiliated to Rudra as his consort. How and why the beautiful, young northern goddess imparting the knowledge of *brahman* to the gods and an autumn goddess represented by Ambikā came to be affiliated of all deities to the strange figure, somewhat disreputable, that the old Rudra had become in the later Vedas and Vedic literature, is not known, nor are there any indications in the texts from which conjectures might be built up. We are confronted by accomplished results and there is

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323. Tait. Ār. X. 18. 324. Kena Up. III. 25.
325. Vāj. Saṁ. III. 5 ; Tait. Saṁ. I. 8. 6. 4.
326. Tait. Br. I. 6. 10.; Śat. Br. II. 6. 2. 9.
327. Tait. Ār. X. 18.
328. Rv. VII. 59. 12.; A. B. Keith, Religion and Philosophy of the Vedas, Vol. 31, p. 144.
329. Arbman, Rudra, p. 296 f. Quoted by Keith, op. cit. p. 149.
330. Keith, op. cit. p. 149.

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nothing to satisfy the curiosity to know something of the forces in operation contributing to the achievement of these results.

Bhadra-Kālī appears in the *Śāṅkh. Gṛhya Sūtra* and *Manu Saṃhitā* and offerings to her are prescribed.[331] In the Muṇḍaka Upaniṣad there occur names some of which are familiar to us as names of independent goddesses and others as names of the Devī. All these names, Kālī, Karālī, Manojavā, Sulohitā, Sphuliṅginī and Viśvarūpā are the names of Agni's seven flames in the *Muṇḍaka Upaniṣad.*[332] The names Durgī, Vairocanī, Kātyāyanī and Kanyā Kumārī occur in the Tait. Āraṇyaka in verses addressed to Agni.[333] The name Durgī is explained by Sāyaṇa to be the same as Durgā. One of the meanings of the name given in the Saptaśatī Caṇḍī is *difficulty.*[334] In the light of the above the following verse in the Ṛgveda addressed to Agni will appear to be significant :

Jātavedase sunavāma somam arātīvato ni dahāti vedaḥ
Sa naḥ parṣadati durgāṇi viśvā nāveva sindhuṁ duritātyagnih.[335]

"We offer soma to Agni. May he burn the wealth of those whose conduct towards us is hostile. Just as one crosses a river by boat so may he take us over all difficulties. May Agni take us over all evils."

Durgā or Durgī does not appear as a goddess any more than Kālī, Karālī etc., it is only a name. Considering, however, how single words in the Ṛgveda have become the starting points of elaborate myths in the later ages as well as the facts that Rudra is identified with Agni[336] and Agni's flames have become later names of Rudra's consorts, it is a plausible hypothesis that the name Durgā and the conception that she is a goddess who saves people from difficulties *(durgāt tarase yā)* might have something to do with the above Ṛgvedic verse.

Śrī is another important goddess who appears in the later Vedic literature. In the *Śatapatha Brāhmaṇa* she is the personification of beauty or fortune.[337] She appears also in the *Bodhāyana Dharma Sūtra.*[338] "It is very probable" writes Keith, "that she was assimilated to the goddess Earth, who as Bhūmī, is not rarely mentioned in the Sūtra literature." Again, "Śrī denotes primarily what is beautiful, that is, something possessing show and brilliance, but even in the

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331. Śāṅkh. Gṛ. S. II. 14. 1 ; Manu Saṁ. III. 89.
332. Muṇḍ. Up. I. 2. 4.
333. Tait. Ār. X. 1. 7.
334. Caṇḍī, IV. 10, 16.
335. Rv. I. 99.
336. Rv. I. 27. 10.
337. Śat. Br. XI. 4. 3. 1.
338. Bodh. Dh. S. II. 5. 9. 10.

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Ṛgveda it seems to designate the pomp of the man in high position."[339] Offerings are prescribed to Śrī in the *Manu Saṃhitā*.[340] Verses to Sarparājñī or the Queen of serpents are prescribed to be recited in sacrifices in the *Śatapatha* and *Aitareya Brāhmaṇas*. She is identified with the Earth. "The Serpent queen is this (earth) for this (earth) is the queen of what creeps."[341] "They chant the verses of the queen of serpents; for the queen of serpents is this earth; through her they obtain everything."[342]

Among old Ṛgvedic deities Sītā, Sarasvatī, Pṛthivī, Sinīvālī, Anumati etc., and Nirṛti retain their old importance. Round Sītā as the central figure there developed a full-fledged cult of agricultural deities. Sītā is the wife of Indra in the Pāraskara Gṛhya Sūtra.[343] In the Taittirīya Brāhmaṇa she is the wife of Indra and Savitar.[344] It has been noted that Urvarā is personified fertility in the Ṛgveda and Indra is called Urvarāpati. This has probably led to the description of Sītā as the wife of Indra. Urvarā is described as having a garland.[345] In the Atharva Veda Sītā, Śuna and Sīrā are invoked to grant bumper crops to farmers.[346] The presiding deity of the field is invoked as a queen in the Atharva Veda.[347] In the Sūtra literature offerings are made to Kṣetrapati when a field is ploughed,[348] but round Sītā appear a number of female agricultural deities. Offerings are prescribed to Sītā, Āśā, Aradā and Anaghā at the furrow sacrifice, at the threshing floor sacrifice, at the sowing, at the reaping of the crop and at the putting of the crop in the barn.[349] In the PGṛS. offerings in this connection are prescribed to another group of new female deities e.g., Yajā, Samā and Bhūti.[350] At the harnessing of the plough offerings are made to Sītā and Anumati.[351] Thus we find that the Ṛgvedic cult of agricultural deities with Sītā as the central figure expands into an important cult in the later Vedic literature with a fairly numerous pantheon of its own, the members of which were possibly recruited from

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339. Keith, op. cit. p. 249. In the Ṛgveda the word *aśrī* is used in the sense of "ugly" *(aśrīr iva jāmātā* ... Rv. VIII. 2. 20). The word *lakṣmī* also occurs in the sense of beauty of style — Rv. X. 71. 2.

340. Manu Sam. III. 89.
341. Ait. Br. V. 23.
342. Śat. Br. IV. 6. 9. 7.
343. PGṛS. II. 17. 9.
344. Tait. Br. II. 3. 10. 1.
345. PGṛS. II. 17. 9.
346. Av. III. 17.
347. Av. II. 12. 1.
348. Āś. GṛS. II. 10. 4; Śāṅkh. GṛS. IV. 13. 5.
349. GGṛS. IV. 4. 27.
350. PGṛS. II. 17. 13 f.
351. Keith, Religion and Philosophy of the Vedas, Vol. 31, p. 214.

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among folk agricultural deities. Along with these new agricultural deities we have a new guardian goddess of pasture in Ghoṣiṇī.[352]

Sarasvatī, the Ṛgvedic river-goddess and tutelary deity of the Ārya tribes, is the wife of the Aśvins in the Yajur Veda.[353] Keith writes, "In the Ṛgveda in Sarasvatī we need not see any thing more than a river-goddess.[354] But in the Brāhmaṇas she is connected with speech, perhaps because Vedic culture and poetry flourish there and in the post-Vedic literature she is the goddess of eloquence and the wife Brahmā."[355] In the Atharva Veda she acquires new attributes. She becomes a cure goddess and is invoked for killing parasitic worms and for curing physical disorders.[356] She is also concerned with conception and child birth.[357] This attribute is given her late in the Ṛgveda.[358]

Pṛthivī is the great mother, queen of the universe and kindly mother to whom all creatures return at death according to the Ṛgveda. In the Atharva Veda she is a great goddess, kindly disposed, who receives the sacrificial skin.[359] In the famous hymn to her she is invoked as 1) the mistress of all that is and all that is to be ; 2) all-begetting mother of the plants, mother of Agni Vaiśvānara, consort of Indra ; 3) the purifier, the patient earth etc.; 4) she furnishes a bed to all ; 5) she drives off the enemy, keeps off all wicked animals, evil spirits, demons etc.; 6) she is Aditi, the vessel that contains people.[360] In the Sūtra literature offerings are prescribed for the earth on various occasions such as the ceremony of handing over the pupil by the teacher, at the opening of the Vedic study and in the Bali offerings (in water pots).[361] A new goddess Vācinī is connected with the earth in some of these offerings[362]. Sinīvālī and Sarasvatī are invoked together as in the Ṛgveda, to promote conception.[363] Sinīvālī is invoked along with Anumati in the same connection.[364] She is "queen of men," "beautiful-fingered," "lovely-armed," "prolific," "bearing many a child," "consort of Viṣṇu" etc.[365] Kuhū identified with Guṅgū by

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352. SGṛS. III. 9. 1.
353. Vāj. Saṁ. XIX. 12. 94.
354. Carnoy (les Indo-Européens, p. 199) compares Anahita in Iran and suggests borrowing from the Babylonian mother of waters. Keith, op. cit., p. 173 note.
355. Keith, op. cit. pp. 173-4.
356. Av. V. 23. 1 ; III. 53. 17.
357. Av. V. 25. 3.
358 Rv. X. 184. 2.
359. Av. XI. 1. 8.
360. Av. XIII. 1.
361. HGrS. I. 6. 5 ; PGṛS. II. 10. 3 ; Śāṅkh. GṛS. II. 14. 5 f ; GGṛS. I. 5 f.
362. HGṛS. I. 6. 5.
363. Av. V. 25. 3.
364. Av. VI. 2. 3.
365. Av. VII. 46.

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Sāyaṇa, is the beneficent queen of the gods and immortality.[366]. Rākā is prayed to grant riches.[367] Along with the wives of the gods a prayer is made in Av. VII. 49. to the new goddess Rāṭ about whom nothing further is known. Rati is another new goddess meaning personified oblation.[368] The inward parts of the sacrificial bull is assigned to Sinīvālī.[369] Sarasvatī, Sinīvālī and Bhaga are prayed to grant children to a newly married couple.[370] Asunīti is invoked in Av. XVIII. 3. 59. Anumati rises into prominence in the Atharva Veda and she comes to acquire the same attributes as Sinīvālī. Sides of the sacrificial bull are assigned to Anumati.[371] She retains something of her Ṛgvedic abstract character in Av. VII. 20. where her conception rises to abstract generalisation : "Anumati became this All ; whatever stands or walks, everything that moves."[372] In connection with conception Anumati, Sinīvālī and Prajāpati are invoked together in Av. VI. 11. She is also invoked in a woman's love charm.[373]

To the Nirṛti group is recruited new members such as Arāti, Druh, Grahī etc. besides the older members which it contains.

Nirṛti is the spirit of evil, brooding over death, destruction and misfortune. She is a powerful deity and her bonds or snare are repeatedly mentioned in the Atharva Veda.[374] She is often invoked along with groups of male and female demons. Among them are the Kaṇvas who devour germs.[375] Nirṛti is offered a portion of the offerings.[376] She is conceived of as having golden hair and homage is paid to her.[377] In the Sūtras an ass is offered to Nirṛti by a student who violates the vow of chastity.[378] Henry identifies Nirṛti with the earth : "La terre a deux aspects ; mère de tous les vivants, rendez-vous de tous les morts ; et l' expression favorite de la devotion aux dieux infernaux, *nirṛter upasthe,* "dans le giron de Nirṛti" a pu bien signifier à l'origine 'au sein de la terre'."[379]

Nirṛti is the principal figure among a host of malignant spirits. The female spirits among them are Grahī, Druh, Maguṇḍī, Arāyī, Arāti etc. Grahī is referred to in the hymn of benediction used

366. Av. VII. 47. 2.
367. Av. VII. 47. 3.
368. Av. VII. 17. 4.
369. Av. IX. 4. 14.
370. Av. XIV. 2. 15, 21.
371. Av. IX. 4. 12.
372. Av. VII. 20. 4.
373. Av. VI. 131. 2.
374. Av. IV. 36. 10 ; II. 10. 6.
375. Av. II. 25. 4.
376. Av. XI. 1. 12.
377. Av. V. 7. 9.
378. PGṛS. III. 12. 8.
379. Victor Henry, La Magie dans l'Inde Antique, p. 160.

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in the birth ritual.[380] A prayer is made for obtaining release from the four bonds of Nirṛti and Grahī.[381] A prayer is made to Daśavṛkṣa for freeing the patient from Grahī who has seized his joints and members.[382] Protection is sought from Nirṛti and Druh.[383] Druh appears also in the Ṛgveda.[384] Magunḍī is a female evil spirit having a number of daughters who work mischief in the cattle-shed.[385] Arāyis are female fiends who are said to live in the darkness of the nether world.[386] Arāti or malignity is a more important figure. Homage is paid her along with Nirṛti. She is prayed to baffle enemy's desires; she haunts people in their sleep, appearing as a naked girl.[387] She is identified with Nirṛti. "A la grande, à la gigantesque qui embrasse toutes les regions celestes, à la Nirṛti aux cheveux d'or j'ai fait hommage. A la propice dont le teint est d'or, qui repose sur un divan d'or et se drape d'une robe d'or, a l'Arāti j'ai fait hommage."[388]

Like Grahī, Druh etc. Apvā is also a disease spirit as she is in the Ṛgveda. She is prayed to paralyse the senses of the enemy, smite him with darkness and bewilderment.[389].

What is there of importance to notice in the later Vedic literature in regard to mother-goddess worship has been indicated above. Whether the increase in the number of new female functional deities and female evil spirits is due to the assertiveness of popular religion or not is a matter for consideration. In the case of three familiar figures, Pṛthivī, Anumati and Nirṛti, the older conceptions are enlarged and elevated. The change brought about in the case of Nirṛti in the Atharva Veda is striking. Strangely enough, the same text reduces Sarasvatī to a killer of parasitic worms. Uṣas and Aditi retire to the background; the void thus created continues throughout the rest of the Vedic period.

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380. Av. II. 10. 6.
381. Av. XIX. 45. 5.
382. Av. II. 9. 1.
383. Av. II. 10.
384. Rv. VII. 59. 8.
385. Av. II. 14. 1. Cp. 'Gosedha' Av. I. 28. 4.
386. Av. II. 14. 3.
387. Av. V. 7. 8, 10.
388. Av. V. 7. Translation by Henry, op. cit. p. 163.
389. Av. III. 2. 5.

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HINDU ARCHITECTURE AND SCULPTURE

By P. K. Acharya

The science of architecture in Sanskrit is called Vāstuśāstra. 'Vāstu' is defined as 'the place where men and gods reside', but it is stated to include 'the ground, building, conveyance, and couch.' The building (harmya) comprises 'prāsāda (palace), maṇḍapa (pavilion), sabhā (hall), śālā (mansion), prapā (tanks etc.) and raṅga (theatres). Conveyance (yāna) includes car, litter (ādiṅka), palanquin, chariot etc. And the couch comprises various kinds of chairs, benches, thrones, and bedsteads.[1] But in the standard treatise, Mānasāra Vāstuśāstra, the term architecture has been taken in its widest sense and implies every thing built, erected, and constructed according to a plan and with an artistic design. Thus in the first place it denotes all kinds of buildings, religious, residential, and military, and their auxiliary members and component mouldings. It covers town-planning, laying out gardens, constructing market places and ports; making roads, bridges, gateways, triumphant arches; digging wells, tanks, trenches, drains, sewers, moats; erecting enclosure walls, railings, embankments, dams, landing places, flights of steps for hills and rivers, ponds, etc. and ladders and escalades or moving stairs. Architecture also implies the artistic construction of various articles of furniture such as bedsteads, couches, litters, palanquins, hammocks, tables, chairs, thrones, wardrobes, baskets, cages, nests, mills, conveyances, lamps, lamp-posts etc. It also deals with the making of dresses and ornaments such as chairs, crowns, armlets, wristlets, fingerrings, waist bands, foot-wears, earrings, nose-rings, etc. Architecture also includes sculpture and deals with the various processes relating to the carving of Phalli of Śiva, idols of deities, statues of great personages, images of fish, animals and birds.

It will be impracticable within the limitation of space to do adequate justice to any of these objects. Thus an attempt is being made to refer briefly to the leading styles of buildings and images only. Even within these limits the discussion of the history, technique and æsthetic aspects will not be adequate. Before an explanation is attempted to prove the existence of various styles of architecture and various schools of architects in an independent India it will be convenient to try to distinguish between the actual function of Engineers and architects both of whom deal with the art of building houses for civil, spiritual, and technical purposes. It is not difficult to under-

1. Mānasāra Vāstuśāstra Chap. iii, iv, v.

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stand the essential and exact difference between architecture on the one hand and civil engineering or mere art of building on the other. The same structure, say, a railway station or a news-paper office may be built both architecturally and also as an object of mere engineering. If the main object of the railway building and the news-paper office were to supply only the necessary accommodation in the most convenient manner, and if no extra expenditure of money and thought were made for the sake of an artistic look or a symbolic expression, these buildings could not be designated as objects of real architecture, Indian or foreign. The artistic design and symbolic significance are not confined, it should be noted, to the external look alone. The essence of architecture proper, however, lies in the 'fine art of designing and constructing ornamental buildings', both externally and internally. It should be noted that the mere engineering buildings are not necessarily devoid of all ornaments and do not always look like godowns. However plain a builder may be he is instinctively artistic in nature, and whatever is built by him must have some sort of art in it. But the real difference lies in the fact that, in architectural buildings like the Christian churches and the Hindu temples, the primary object is to exhibit an artistic design and a symbolic idea throughout ; while in the office buildings, railway station structures, and godowns, the engineering skill lies in providing required accommodation and the facilities at the minimum cost. The question of utility is neither entirely ignored in temples, churches, and mosques ; nor are the beautifying measures, proportion, roof, ceiling, door, window, balcony, verandah, arch, porch, pillars and their mouldings deliberately turned out of the prison houses and barracks. Architecture, thus comprehended, denotes all objects that are constructed according to a design and with an artistic finish.[2] 'Individual tastes differ. Any thing may be beautiful to its lover. But æsthetics has reached the status of a science, and there are recognised standards by which beauty is to be judged. So far as architecture is concerned proportion, uniformity, symmetry and harmony are stated to be the chief elements of beauty. The business and originality of a builder, like those of an editor, lie in his ability in a wise compilation and in an æsthetic and economical adaptation from his authority.' It can be proved by a reference to the extant monuments of the past that the real purpose of the ancient architecture was both beauty as well as utility and stability.

Upon these essential elements were based most of the well known styles of ancient architecture, largely varying, no doubt, according to

2. Writer's *Hindu Architecture in India and Abroad*, pp. 409, 410.

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the genius, dexterity, courage, and wealth of the peoples of different countries and periods. In order to guard against an early misconception that everything beautiful and scientific in India must have been borrowed from outside in some mysterious ways it will be helpful to note the essential characteristics of all the leading styles of European, Muslim, and Persian architecture and compare them with the pure Indian or Hindu styles.

The Persian style of architecture has not a single monument of recognizable condition in Persia or elsewhere. Some objects have been restored from scanty materials. Herodotus (I, 121) has declared that 'the Persian has neither images, nor temples, nor altars.' The *Atesh-gah* is the more noticeable monumental type of religious architecture in Persia. This consists of 'three altars' with very salient forms, which rise upon a block of masonry ; between the pillars at the angle, two parallel flights approach the landing place that lead to the platform. 'Of the civil architecture in Persia fragmentary information of certain unstoreyed halls and palaces only are available. They are divided into three types : the open roofed, the walled throne-room, and inhabited palace. The restored Persian palaces and the halls, open, walled, pillared, and unstoreyed, exhibit a great architectural beauty of their own.

In India the styles of architecture are mentioned for the first time in the Buddhist scripture. In the Mahenjo-daro buildings no classification or division into styles is possible owing mainly to the small number of structures as also owing to the absence of pillars and any other striking outward features. In the Vedic period references to various individual buildings are available. There were the massive *(pṛthivī)*, extensive *(urvī)* hundred-walled *(śatabhujī)*, stone-built and iron-protected *(aśma-mayī āyasī)* forts. In addition to the noblemen's mansions *(śālā-harmya)* and King's palace *(prāsāda)*, comprising several storeys, particulars of smaller houses may be inferred from the Vedic Literature including the Saṁhitās and Brāhmaṇas. Vasiṣtha desired to have a three-storeyed building (Wilson's R.V. IV, 200). Mention is made of a sovereign who sits down in a substantial and elegant hall built with a thousand pillars (Wilson's R.V. II, 313.) There were residential houses with such pillars which are said to be vast, comprehensive and thousand-doored (Wilson's R.V. IV, 179). Mitra and Varuṇa are represented as occupying a great palace with a thousand pillars and a thousand gates (Compare RV. II. 41. 5 ; VII. 88. 5). In keeping with the requirements of an ordinary house for a family of Brahmanic custom in a village settlement there were several side-rooms with a central hall in bungalow pattern *(pakṣa, Kāṭh. Saṁ.* XXX. 5 ; Taitt. Brā. I, 2, 1 ; *āgāra*, A.V. IV. 36, 3). The *agni-śālā*

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(hall of fire altar) of the later age probably in the centre served the purpose of both sacrifice and sitting room. With it was connected the sacrificial store-room *(havirdhāna)* and bed-room *(patnī-sadana,* women's apartment). A covered verandah ran all round the house (cf. A.V. IX, 3, 17). The well-proportioned house (bṛhat chandas) was covered by a *'many-winged roofing.'*[3] This type of Vedic houses is represented by the Modern Bengal straw-houses with two, four and eight standing roofs (cālās). In Vedic period other varieties must have developed according to regional conditions.

The particulars of monumental stone structures erected over or near burnt or buried bodies are also available in the Vedic literature. The *Śatapatha Brāhmaṇa* (IX. 5, 1, 64-68 ; XIII. 8, 1, 1-5 ; 8, 2, 1-9 ; 8, 2, 11 ; 8, 4, 11, etc. cf. AV. V. 31, 8 ; X, 1, 18, etc., Taitt. V, 2, 8, 5, etc.) supplies the full details. The funerary structures are classified under three groups, *Vāstu Gṛha,* and *prajñānan*[3a] (ibid. XIII. 8, 1, 1-5). The Vāstu type survives in the name Kapila-Vastu which might have been originally built as the memorial *stūpa* of Kapila. 'In this sense it would look like a solid stone or brick vault with stone enclosures and might have supplied the pattern of sub-terranean and rock-cut caves of later ages. The Roman catacombs and Egyptian cave-graves offer instructive parallels. The *Gṛha* means a dwelling-house with many chambers and implies that the funeral structure was either an actual house (mausoleum) with many rooms, erected over or beside the grave in memory of the deceased and for the benefit of his soul dedicated to some religious order or philanthropic use. There appears to have been two distinct styles. The unorthodox type is described clearly as round and down shaped (Śat. Brā. XIII. 8, 1, 1). The orthodox style is stated to be square or quadrilateral (ibid. XIII, 8, 1, 1 etc.). Bricks one foot square were used in its construction.

'The former is the prototype of the Buddhistic *stūpa* architecture of the very next epoch, and of the Śaiva temple styles of subsequent ages characterized by the round domes. The latter is a specially Brahmanical style, associated with sacrificial altars and rectilineal figures, strikingly paralleled by the similar sacrificial and geometrical style of squares and bricks in ancient Babylonia, and represented recognizably in some later forms of Brahmanical temple architecture such as at Madura, Tanjore and also in earlier monasteries of several storeys built pyramidically.' On the back of these *Citras* are enjoined to

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3. In ancient architectural buildings pillars served as the regulators of the whole composition. Compare later the five Greco-Roman orders which regulated the pre-Gothic styles of the European architecture.

3a. What the author means by this term is not clear, Ed.

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be made. These Citras are stated to mean 'offspring' and must imply figures, painted or carved, of women and children and possibly couples of men and women.

The Prājñānan (Śat. Brā. XIII. 8, 1, 1) implies the monumental pillars and memorial stone-slabs. In the Vedas (Rv. X, 18, 3 ; Av. XVIII, 3, 52.) a *thūṇa* is stated to have been set upon the grave, and a *loga* is erected upon the earth which is piled up from about the grave. On the *Sthūṇa* "maintained by the father, Yama makes seats for the departed." Seats on memorial pillars, like the lion capitals of Mauryan age, may imply some sort of effigy or bust of the dead person. In the time of the *Śatapatha Brāhmaṇa* (XIII. 8, 4, 1 ; IV. 2, 5, 15) and of the Sūtras (Kāt. Śr. Sū. XXI, 3, 31) a stone pillar was set up along with three timber ones at the four corners of the grave or cemetery.[4]

This Vedic practice must have led to the 'Buddhistic monolithic pillars erected beside the relic-*stūpas*' and a theory of their Persepolitan origin is unnecessary.

The construction of the Vedic altars, which were required for the great *Soma* sacrifice was the precursor of the temple which later became the chief feature of Hindu architecture. The particulars are given with the constructional details in the *Śulba sūtras* which are the supplementary portions of the *Kalpa sūtras*. These altars were built to resemble the form of a falcon, a heron, a heron without wings, an equilateral triangle, a double-triangle joined at their bases, a wheel with or without sixteen spokes, a square or circle like a vessel or tube, another circular shape, and a tortoise, also triangular or circular in shape. Everyone of these altars was constructed of fine layers of bricks, which together came up to the height of the knee. In some cases ten or fifteen layers and proportionate increase in the height of the altar are prescribed. Every layer in its turn was to consist of two hundred bricks, so that the whole altar contained a thousand. The first, third, and fifth layers were divided into two hundred parts in exactly the same manner. A different division was adopted for the second and the fourth layers, so that one brick was never laid upon another of the same size and form. The first altar covered an area of $7\frac{1}{2}$ squares each side of which was equal to the height of a man with uplifted arms. In each subsequent occasion the area was increased by one square of the same size.[5]

In the period of Buddha the building activities increased to such

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4. Vide writer's 'Hindu Architecture in India and Abroad, p. 56.

5. For fuller details vide the writer's *Hindu Architecture in India and Abroad*, Chap. 11, pp. 54-64.

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an extent that Buddhist architecture alone had to be classified under as many as five groups in order to meet the growing needs of the Society. Buddha himself allowed to monks abodes of five kinds—*Vihāra, Ardhayoga, Prāsāda Harmya,* and *Guhā.* Of these, *Vihāra* and *Guhā* are connected with Buddhism proper, the former being the Buddhist monasteries as at Karle, Bhaja and other places and the latter implying the rock-cut temples and monasteries contained as at Ajanta, Ellora, Nasik and other places. *Ardhayoga* implies two-roofed (do-cālā) houses which Buddha Ghoṣa interprets as 'gold coloured bungalow' *(Suvarṇa-vaṅga-gṛha)* largely in use in Bengal. *Prāsāda* may be 'the monks' hall for assembly and confession' which may be seen at Ajanta and other places. *Harmyas* are storeyed mansions and palaces used both by rich people and monks. The *stūpas* like at Sarnath, Sanchi and other places are monumental buildings usually built after the Hindu *Śmaśāna* to contain the sacred relics of Buddha. "Even in the Buddha's time the size of these monuments had already reached very considerable dimensions. The solid dome erected by the Sākyas over their share of the ashes from the Buddha's funeral pyre must have been about the same height as the dome of the St. Paul's measured from the roof."

'The *Vihāra* with the Buddhists and Jains was a hall where the monks met and walked about ; afterwards these halls came to be used as temples, and sometimes became the centres of monastic establishments. Like the *Caityas* or churches, they resemble very closely the corresponding institutions among Christians. In earlier ages they accompanied but were detached from the *Caityas* or churches. In later times they were furnished with Chapels in which the service could be performed independently of the *Caitya* halls which may or may not be found in their proximity.'

'The extensiveness of these buildings can be imagined not only from the colossal structures Borobudur, Angkorvat and other places but also from the length of time and the amount of money spent. A small *Vihāra* is stated to have been completed in five to six years, an *Ardhayoga* in seven to eight years and a *Prāsāda* in ten to twelve years. That these long periods were not idled away will be clear from the details of the houses quoted below. The Jain temples at mount Abu will give evidence to the amount of labour spent on them. The modest figure of some thirty crore rupees is mentioned in an inscription while the Taj Mahal of Agra, the wonder of the world, did not cost more than twenty-two crores although some twenty thousand labourers worked for some twenty years. A modest residence for a layman is stated to contain 'dwelling rooms and retiring rooms, store-rooms, service halls and halls with fire places in them, store-houses,

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closets, cloisters, halls for exercise, wells and sheds for the wells, bath rooms and halls attached thereto, open-roofed sheds and ponds.' An *Upāsaka* (devotee) is stated to have built for his own use a residence with "a sleeping room, a stable, a tower, a one-peaked building, a shop, a boutique, a storeyed house, an attic, a cave, a cell, a store-room, a refectory, a fire-room, a kitchen, a privy, a place to walk in, a well, a wellhouse, a pavilion, a pond, and a bathing place for hot sitting baths."

In the King's palace *(prāsāda* and *harmya)* there was accommodation also for all the business of the State, and for the numerous retinue and the extensive harem. A building of seven storeys in height is repeatedly mentioned.

What is inaccurately called the 'Turkish bath' was an Indian invention. The famous baths or bathing tanks with well cemented banks and necessary rooms of Mahenjodaro were in existence in India in 3000 B.C. In the fifth century B.C. the hot air baths are described in full in the *Vinaya texts.* 'They were built on an elevated basement faced with brick or stone, with stone stairs leading up to it, and railing round the Verandah. The roof and walls were first covered with skins and then with plaster. There was an antechamber, a hot room, and a pool to bathe in. Seats were arranged round a fire place in the middle of the hot room ; and to induce perspiration hot water was poured over the bathers ..... After the bath there was shampooing and then a plunge into the pool.' On it Rhys Davids observes in wonder : "It is very curious to find at this very early date in the Ganges Valley a sort of bathing so closely resembling our modern so-called Turkish bath."

There are ample details available of forts, fortresses, courts of Justice, secretariats, stables, cowsheds, birds' nests, prison houses, Universities, colleges, schools, dancing halls, theatres, and hospitals for men and beasts. The remains of many of these may yet be unearthed. Not that all varieties will suit the modern requirements or can compete with the modernised varieties imported from abroad. But the adaptation of indigenous styles to the modern needs is far easier, more economical, and more suited to the climate and soil than any of the foreign styles introduced by the Persians, the Pathans, the Moghals or the Europeans can ever be. The writer is diffident to quote an instance like the Swastika Mansion, where the real purpose of the ancient architecture, viz., utility, beauty and stability together with modern comforts and convenience may be found to have been adequately demonstrated.

The archæological sources can supply only an imperfect and insufficient survey of Hindu architecture. In order to get an unbiassed

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and more complete idea of our ancient architecture the literary sources are indispensable. Almost a complete account with full details of all varieties of architecture, religious, civil and technical, has been gathered together in the writer's 'Hindu Architecture in India and Abroad.' The literary sources include references from the Epics, Purāṇas, Āgamas, technical works like the Kauṭilīya Arthaśāstra, Śukranīti, and the Harṣa-carita, Rājatarangiṇī, and numerous poetical works and dramas, and lastly that vast class of literature known as Vāstuśāstras and Śilpaśāstras which are avowedly architectural treatises. The Mānasāra Vāstuśāstra, much like the Vitruvius treatise which regulated all European architecture, attained the recognised position of a standard work in India and appears to have regulated the art and architecture of the whole country. Owing to the limitation of an article like this we must conclude with a brief reference to the contents of this standard treatise. There are altogether seventy chapters, the first eight being introductory, the next forty-two dealing with various types of buildings and their component parts, and the last twenty being devoted to sculpture which is the hand-maiden of architecture. In the introductory chapters full accounts are given of such matter as the system of measurements, the training and necessary qualifications of the different classes of architects, the selection of building site after testing the soil etc., planning, designing and orientation of buildings. In this account practical directions are given in consideration of soil and atmospheric condition, wind direction, sun, rain and other meteorological elements concerning weather and climate. As houses are built in villages, towns and other localities including both hill-tops and sea-shores, the lay-out of villages and town-plans fully conformed to a practical end. Foundation being the irreparable and chief thing in all construction full details of various kinds of foundations, including the rock-foundation and water foundations have been supplied to facilitate the work of construction. Stability is one of the chief characteristics of Hindu architecture and this is sufficiently established by all the scientific and technical calculation and is corroborated by the extant Hindu structures as described above. Dimensions proportion, symmetry and uniformity, the chief elements of beauty in architecture, are next described. This æsthetic side of Hindu architecture has been universally recognised and is sufficiently illustrated even by the scanty archæological remains. There were storied buildings running to twelve storeys in temples, mansions and palaces and upto seventeen storeys in gatehouses (Gopurams). But they were not the ugly sky-scrapers of the present day.

(To be continued)

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ORIGIN OF MEDIÆVAL TEMPLE STYLES

By S. K. Saraswati

The Indian Śilpaśātras[1] recognise three main styles of temples, known as the *Nāgara*, the *Drāviḍa* and the *Vesara*. The descriptions given of them are, however, rather vague and inadequate and it is not possible at the present stage to equate the descriptions with any of the known examples of Indian temple architecture. The term *Drāviḍa* indicates that the names are primarily geographical. The various texts also contain passages mentioning the respective regions in which the different styles were current, though some of the texts maintain that all the styles may be found in all the regions *(sarvāṇi sarvadeśeṣu bhavantītyapi kecana — Īśānagurudevapaddhati; sarvaṁ sarvatra sammatam — Kāmikāgama)*. All the available texts are agreed on the point that the *Nāgara* style was prevalent in the region between the Himalayas and the Vindhyas.[2] The Drāviḍa country is well known and the texts rightly confine the *Drāviḍa* style to that part of the country lying between the river Kṛṣṇā and the Kanyākumārī.[3]

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1. *Mayamata*, Chaps. XIX & XXI; *Īśānagurudevapaddhati, Paṭala* XXX; *Tantrasamuccaya, Paṭala* II; *Suprabhedāgama*, Chap. XXX *(Kesara* of this text is apparently a mistake for *Vesara); Kāmikāgama, Paṭala* XLIX; *Kāśyapaśilpa*, Chap. XXV; *Śilparatna*, Chap. XVI.

2. *Nāgarasya smṛto deśaḥ Himavad-Vindhyamadhyagaḥ—Īśānagurudevapaddhati, Śilparatna.*

Himavad-Vindhyayormadhyaṁ sāttvikam bhūtalaṁ smṛtam /

. . . . . .

Nāgaraṁ sāttvike deśe . . . . . .

Śilparatna.

Cf. identical statements in *Kāśyapaśilpa* and *Kāmikāgama.*

The *Aparājitāpracchā* confines the *Nāgarī (Nāgara)* style to Madhyadeśa and further mentions *Lāṭī* and *Vairāṭi* (evidently of the Lāṭa and Virāṭa regions) as separate styles:

Nāgarī Madhyadeśe tu Lāṭī Lāṭe prakīrttitā /
Drāviḍī dakṣiṇe bhāge Vairāṭī tu svadeśajā //

From Ms. in S. K. Ray collection Fol. 51.

Lāṭī and Vairāṭī should, however, be considered as ramifications of the *Nāgara* style which was current throughout Northern India.

3. *Īśānagurudevapaddhati; Kāmikāgama.*

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A careful study of the monumental remains would inevitably lead to the conclusion that the temples erected in each of these two regions in the mediæval period admit of some common denominator, both as regards ground plan and elevation, and on the basis of this common denominator the temples of these two regions are sharply distinguished from each other. The *Nāgara* and the *Drāviḍa* styles can thus be explained with reference to Northern India and the Drāviḍa country respectively and the characteristic form and features of each determined. The term *Vesara,* however, is not free from vagueness. Some of the texts ascribe the *Vesara* style to the country between the Vindhyas and the river Kṛṣṇā, but there are texts placing it between the Vindhyas and the Agastya (the location of which is uncertain).[4] In this region, or more properly in the region at one time under the domination of the Cālukyas, a separate style of temple architecture may be recognised—a style that is known to the archæologists as the 'Cālukyan'. This style, however, is a hybrid one—a combination of the *Drāviḍa* and the *Nāgara* elements—and becomes clearly distinguished not before the 11th century A.D. Thus, with regard to the evidenc of the monuments, the three styles of the texts can be resolved ultimately into two—the *Nāgara* and the *Drāviḍa.*

None of these two styles again can be said to have evolved its typical form before the 8th century A.D. An enquiry into the origins of these two styles requires a preliminary idea of the characteristic form and features of each, for which, however, the texts, as has already been observed, are of very little help to us. The three styles—the *Nāgara,* the *Drāviḍa* and the *Vesara* — are always distinguished in the texts by their shapes. As for example, the texts are all agreed in laying down that a *Nāgara* temple is quadrangular all over,[5] i.e., from the base to the *stūpī.*[6] But this feature of the plan is so very general

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4. *Kāmikāgama ; Īśānagurudevapaddhati ; Śilparatna ;* etc.
The interchange of the *Drāviḍa* and the *Vesara* regions, as we have in the *Kāśyapaśilpa,* is apparently a mistake.

5. *Sarvaṁ vai caturasraṁ yat prāsādaṁ Nāgaraṁ tvidāṁ* / — *Śilparatna*
Mūlādyāśikharaṁ yugāsraracitaṁ gehaṁ smṛtaṁ Nāgaram /
Tantrasamuccaya.

6. *Upāna-stūpīparyantaṁ yugāsraṁ Nāgaram bhavet* / — Kāmikāgama.
Stūpyantaṁ caturasraṁ yan-Nāgaram parikīrttitam / — Mayamata.
Here *stūpī* simply means the top of the *śikhara* and should not be confused with the domical crowning element (technically known as the *stūpī* or *stūpikā)* of the *Drāviḍa* temples

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and common that it is difficult to consider it as a sure and distinctive cognisance of a particular style. In its origin every type of building may be found to have begun from a quadrangular shape and to have retained it, with slight modifications, until a very late stage in evolution. The octagonal and circular shapes respectively of the *Drāviḍa* and the *Vesara* styles are also too inadequate to be regarded as sure and distinguishing marks for the styles concerned. Under the circumstances, one has to depend on the evidence of the monuments themselves for a knowledge of the particular form and features of any one of the styles.

A study of the temples of Northern India, in which, texts are all agreed, the *Nāgara style* was widely prevalent, reveals two distinct features—one in planning and the other in elevation. In plan it is always a square with a number of offset projections in the middle of each side, which give it the shape almost of a cruciform. In elevation it exhibits a high tower *(śikhara)*, gradually inclining inwards in a convex curve, for which we have the term *śukanāsā śikhara* (i.e., the *śikhara* which is curved like the parrot's beak) in the *Purāṇas*. On account of the prominence of the vigorous and unbroken outline of the tower it is also known as the *Rekha śikhara*. Widely distributed over the whole of Northern India the *Nāgara* style is expected to exhibit distinct varieties and ramifications in different localities, conditioned not only by local factors but also by the different lines of evolution and elaboration that each locality chose for itself. The cruciform plan and the curvilinear tower are common to every mediæval temple of Northern India, wherever it is situated. In spite of elaborations and modifications in different localities, these two fundamental facts of a Northern Indian temple cannot be lost sight of and may be considered as distinctive characteristics of the *Nāgara* style of temple architecture. The projections on each face of the square plan each leave out a small portion at either corner and thus give rise to a number of projecting angles *(asras)* and facets (known as *rathakas* in Sanskrit and *rathas* in the canonical texts of Orissa, which was one of the most important provinces of the *Nāgara* style). In this connection it should be observed that some of the texts describe a *Nāgara* temple both as *caturasra* (quadrangular or square) and *āyatāsra*.[7] The latter term has been interpreted as rectangular.[8] It appears, however, that *caturasrāyatāsra* of the texts should better be taken to

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7. *Caturasrāyatāsram yan-Nāgaram parikīrttitam /*
— Kāmikāgama ; Mayamata.

8. *Indian Culture,* Vol. VII, pp. 74–75.

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mean 'square with angles projected' *(āyatāsra,* i.e., *asras* or angles made *āyata* or projected). This sense finds confirmation in the plan of the *Nāgara* temple, which on account of the projections on each face, may appropriately be described as a square with projecting angles *(caturasrāyatāsra).*

The fundamental characteristics of a *Nāgara* temple are hence the cruciform plan and the curvilinear tower *(śikhara)* and the simplest arche-type of the style may be seen in a group of shrines that were in vogue in the 6th century A.D. The most representative examples of the group are furnished by the Daśāvatāra temple at Deogarh (Lalitpur district, C.P.)[9] and the brick temple at Bhitargaon (Cawnpore district, U.P.).[10] Though belonging to the Gupta age in its later phase each of them presents a distinct deviation from the archaic Gupta type of flat-roofed shrines in having a low and stunted *śikhara,* gradually diminishing towards the top, over the square sanctum. The *śikhara* type appears to be an elaboration of the flat-roofed temples of old, from which it differs little in plan and arrangement. The *śikhara,* however, is a distinct innovation. In religious architecture there is always an aspiration for ascending height and though no *śikhara* temple of a date prior to the 6th century A.D. is extant now, the inscriptions speak of the existence of high and lofty *śikhara* temples even in the 5th century A.D.[11]

Elsewhere[12] the present author has discussed in detail the various types of Gupta temples and only a brief notice of the *śikhara* type with reference to its associations with and contributions to the development of the *Nāgaras* style of temple should be made here. The *śikhara* temples of the Gupta period provide a significant contrast to the archaic Gupta type of flat-roofed shrines and may be classed with the mediæval Northern Indian *śikhara* temples of which they are surely the precursors. The walls of the flat-roofed Gupta temples are

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9. Cunningham, *Archaeological Survey Reports,* Vol. X, pp. 105-10, Pls. XXXIV – XXXVI ; Coomaraswamy, *History of Indian and Indonesian Art,* p. 80 ; *Modern Review,* Vol. XLV, 1929, p. 60 ; R. D. Banerji, *The Age of the Imperial Guptas,* pp. 146-152.
10. *ASR,* Vol. XI, pp. 40-45 ; *HIIA,* p. 80 ; *Archæological Survey of India, Annual Reports,* 1908-09, pp. 6-16, Pls. I–V.
11. *Vistīrṇatuṅgaśikharaṁ śikhariprakāśam – Corpus Inscriptionum Indicarum,* Vol. III, no. XVIII, verse 30.
Kailāsatuṅgaśikharapratima – Ibid., no. XVII, v. 21, no. XVIII, v. 12.
12. S. K. Saraswati, *Temple Architecture in the Gupta Age, Journal of the Indian Society of Oriental Art,* Vol. VIII, pp. 146-158

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severely plain, but the Daśāvatāra temple at Deogarh presents a new feature, apart from the *śikhara*, in the arrangement of three sculptured niches on the three walls, each as a sunken panel between two pilasters. These niches along with the projection of the portico in the front wall appear to set off the walls in the middle of each face. The arrangement of the niches on the plain walls may be regarded as the beginning of a device that subsequently develops into the practice of setting forward the middle of each side of the square, a practice that was characteristic of the ground plan of the *Nāgara* temple of later days. One such projection may already be noticed in the brick temple at Bhitargaon and in the Mahādeva temple at Nachna Kuthara (Ajaygarh state, C.P.),[13] the latter being slightly later in date (c. 7th century A.D.) than the Deogarh and the Bhitargaon examples. The *śikharas* of the two earlier temples are badly damaged. The Deogarh tower probably shows the use of corner—*āmalakas*[14] and in each of the two examples the projections on the body of the sanctum, either by sculptured niches or by regular offsets, have been carried up the body of the tower. These two features constitute two other main elements of a *Nāgara* temple and the recessed frieze separating the walls of the sanctum cella from those of the tower may also be found in the early examples of the *Nāgara* style. The graceful and well-preserved Mahādeva temple at Nachna Kuthara exhibits a slight convex curvature of the *śikhara* as it goes up and offers the nearest approach to a temple of the *Nāgara* style in all its essential elements. The brick temple of Laksana at Sirpur (C.P.),[15] contemporary to, or only slightly later than, the Nachna Kuthara monument, also exhibits a form of the tower which is not removed from that of a *Nāgara* temple. With its origins and antecedents in the Gupta period the *Nāgara* style emerges in its typical form and characteristics by the 8th century A.D.

The *Drāviḍa* style was current in the south *(Drāviḍī dakṣiṇe bhāge)*,[16] evidently in the Drāviḍa country *(Drāviḍasyo' cito deśo Drāviḍah syānna cānyathā)*,[17] roughly the country between the river Kṛṣṇā and the Kanyākumārī *(Kṛṣṇādikanyāntam)*.[18] Characteristically

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13. *ASR*, Vol. XXI, p. 98; *Progress Report of the Archæological Survey of India, Western Circle for the year ending 31st March*, 1919, p. 60; *AIG*, pp. 154-55.
14. *Burgess, Ancient Monuments, Temples and Sculptures of India*, Figs. 248, 252.
15. *HIIA*, Fig. 180.
16. *Aparājitāpracchā*.
17. *Īśānagurudevapaddhati*; *Śilparatna*.
18. *Kāmikāgama*.

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vague and inadequate, the texts merely lay down that a *Drāviḍa prāsāda* should be octagonal (some say hexagonal) from the neck to the top,[19] or, as one or two would enjoin, from the base to the top.[20] But an examination of the temples of the Drāviḍa country is enough to show that such descriptions are too meagre altogether to fit the facts.[21]

A study of the temples of the Drāviḍa region, which may be found to belong to one uniform type, clearly shows that the outstanding characteristic of the Drāviḍa style of temple is the pyramidal elevation of the tower *(vimāna)*, which consists of a multiplication of storey after storey, each a replica of the sanctum cella and slightly reduced in extent than the one below, and of a domical member, technically known as the *stūpī* or *stūpikā*, as the crowning element. This storeyed arrangement of the tower in gradually receding stages is a distinct individuality of the *Drāviḍa* style that cannot be missed, though in the later phases of evolution the stages themselves become more and more compressed, so much so that they are almost masked under a profusion of details, which came to be characteristic of the subsequent evolution of the style. In plan the *Drāviḍa* temple presents an inner square chamber as the sanctum and a bigger square enclosure, covered and roofed over, as the *pradakṣiṇa* around. The division of the external walls into niches by pilasters is also a characteristic element of the South Indian temples. The convex roll cornice with *caitya* window motifs demarcating each of the stages and the little pavilions in the upper storeys may also be regarded as peculiar features of the style. The pillared halls and corridors and the immense *gopurams* (gateways) are invariably associated with examples that are considerably late and may be left out in the present discussion.

Many of the distinctive elements of what came to be known as the *Drāviḍa* temple style may be found in a particular type of Gupta temple architecture, which exhibits a building consisting of an inner sanctum with a covered *pradakṣiṇa* forming a bigger square around. Examples of the type may be seen in the so-called Pārvatī temple at

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19. *Mayamata ; Īśānagurudevapaddhati ; Suprabhedāgama ; Tantrasamuccaya ; Śilparatna ; Kāśyapaśilpa.*
20. *Kāmikāgama ; Mayamata.*
21. The description of the *Īśānagurudevapaddhati* that a *Drāviḍa* temple may also be square below the neck and octagonal above has a general likeness with the early mediæval temples of the *Drāviḍa* region.

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Nachna Kuthara[22] and the Śiva at Bhumara in Central India[23] and the Lad Khan at Aihole in the Bijapur district.[24] The roof is flat, and in two of the examples (Pārvatī at Nachna Kuthara and the Lad Khan at Aihole) we find an upper storey, which, being placed above the inner sanctum cella, is necessarily set back. These storeyed structures are in some respects analogous to the storeyed pavilions, shown in relief, on the Audumbara coins from the Kangra valley of about the 1st century A.D.[25] Structurally however, such buildings are for the first time met with in the Gupta period and in these Gupta temples we find just the rudiments of accumulating storey after storey, in gradually receding stages, that form the nucleus of the *Drāviḍa* type of *vimāna*. The plan of the inner sanctum with a covered cloister around is a characteristic particularly common to this type of Gupta temple as well as to the *Drāviḍa* style. Again the scheme of the division of the walls of the *Drāviḍa* temple by pilasters and niches may have its origin in the peculiar device of enclosing the *pradakṣiṇa* square with thin slabs of stone socketted to pilasters, as we have them in the Lad Khan at Aihole. The Lad Khan further shows the use of the roll cornice carved with well-shaped *caitya* arches—a decorative scheme that came to be regarded as a distinguishing mark of the *Drāviḍa* style. Already then in the Gupta period the distinct characteristics of what came to be subsequently known as the *Drāviḍa* temple style may be noticed in a well-defined group or type of temples. The association of the type with the *Drāviḍa* country, however, is an event that is still to come. But there can be no doubt that the *Drāviḍa* temple is an adaptation of the earlier storeyed form of the Gupta temple, enriched further by new elements in the matter of details, which may be said to be of local origin.

With reference to the standing monuments, it has been shown that the three mediæval styles of temple architecture ultimately resolve into two—the *Nāgara* and the *Drāviḍa*—the origins of the characteristic elements of which may be noticed among the varied forms of the Gupta temples. At the same time it should be remembered that the regional definition of the styles is not clear as yet. It comes later.

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22. *ASR*, Vol. XXI, pp. 96-97, Pls. XXV & XXVI; *PRASI, WC*, 1919, p. 61, Pls. XV & XVIa; *MR*, XLV, pp. 54-56; *AIG*, pp. 137-39, Pl. III.
23. *Memoirs of the Archæological Survey of India*, no. 16; *PRASI, WC*, 1919, pp. 57-58; *AIG*, pp. 142-45, Pls. II & IV.
24. *HIIA*, p. 79, Fig. 148.
25. *HIIA*, Figs. 116 & 117; Cunningham, *Coins of Ancient India*, p. 68, Pl. IV, 2.

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Even in the 7th century A.D. the two distinct types occur side by side at Aihole and Pattadakal. The *śikhara* and the storeyed forms of the Gupta period—arche-types respectively of the *Nāgara* and the *Drāviḍa* styles—may also be regarded as elaborations of the archaic Gupta type of the flat-roofed temple. The Gupta period may thus be said to have supplied the basic foundation of the subsequent Indian architecture, the history of which is the story of the two styles, the *Nāgara* and the *Drāviḍa,* with their various elaborations and ramifications. In this respect Gupta architecture presents a picture contrary to what we find in sculpture. In the history of Indian sculpture it has been truly observed that the Gupta period marks the fulfilment of earlier tendencies. In the history of Indian architecture it is just the formative and creative age with unlimited scope for future unfoldment and elaboration.

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THE KUṢĀṆAPUTRAS

By BAIJ NATH PURI

In Vol. XX, Pt. 3, December 1941 Issue of the Journal of Indian History pp. 275ff, I have clearly shown why Kaṇiṣka's claims as the founder of the Śaka era is to be barred. I have fixed the date of Wima Kadphises who was the founder of the Śaka era. I have come to the conclusion that Kaniṣka ascended the throne in 140 A.D. I shall however refrain from discussing that point for the present but in this paper shall discuss the chronology of the later Kuṣāṇas, who were known as *Kuṣāṇaputras*.

The word Kuṣāṇaputra occurs in an inscription recovered from Mat[1] in Mathurā. The king mentioned in this record is *Mahārāja Rājātirāja Devaputra Vamatakṣa*. Mr. Jayaswal considered[2] *'Kuṣāṇaputra'* as meaning 'the son of the Kuṣāṇa' which he took to be the name of the first Kuṣāṇa ruler. He had accordingly considered Vamatakṣa to be none else than Wima Kadphises. Here it may be pointed out that *Kuṣāṇa* could not be the name of the first ruler of this dynasty but it was the name of the family. The Māṇikiāla inscription[3] is very clear on this point as it mentions the phrase *Guṣaṇa vasa samvardhak'*. The word *Kuṣāṇaputra* should therefore mean, 'the descendant of the Kuṣāṇas'. In Indian History instances are not rare to show that a second dynasty is named after the first dynasty. Thus the Cālukyas succeeded the Calukyas and the Kādambas succeeded the Kadambas. It would therefore be in the fitness of things to assume that the Kuṣāṇaputras were the descendants of the Kuṣāṇas. We would now try to construct the genealogy and history of the Kuṣāṇaputras on the basis of the epigraphic, numismatic and palaeographic evidences available on the subject. To begin with we may take the epigraphic evidence first.

The first inscription is recorded on the colossal seated image of Shāhi Vamatakṣa recovered from the ancient site of Māt in Mathurā. The king mentioned in this inscription is *Mahārāja Rājātirāja Deva-*

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1. A.S.I.An. Rep., 1911-12, p. 124.
2. J.B.O.R.S. Vol. VI, pp. 12 ff. 22.
3. Sten Konow; C.I.I., Vol. II. pt. I. p. 145.
4. Ref. I.

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putra Vamatakṣa, the Kuṣāṇaputra. It records the erection of a temple *(Devakula)* a garden *(ārāma)* and a well *(Udapāna)* by a Bakanapati whose name began with the syllables *Huma.* The record is unfortunately undated. As pointed out earlier, the late Mr. Jayaswal had identified Vamatakṣa with Wima Kadphises on the presumption that Kuṣāṇa was the personal name of the first member of the family. This presumption is, however, rebutted by the epigraphic evidence from Māṇikiāla, already pointed out before. Vamatakṣa therefore need not be identified with Wima Kadphises, but he should be considered as a ruler of the later Kuṣāṇa family. The title Bakanapati occurs for the first time in two inscriptions[5] of Huviṣka. Possibly the donor was a foreigner who was owing allegiance to Huviṣka. Here also *Huma* appears to be a foreign name and he seems to have been owing allegiance to Vamatakṣa who was not a small ruler as is noticeable from his titles. That the glory of the later Kuṣāṇa dynasty remained unabated would be clear from some epigraphic records which we are going to consider just now. The first ruler of this later Kuṣāṇa family was Vamatakṣa.

According to our contention, the next ruler of this dynasty was *Vāsiṣka* who has been taken by all the scholars to be the son and successor of Kaniṣka and who, according to them, ruled for a period of about 4 years from the year 24 to 28 of Kaniṣka's era. We however differ from those scholars. We would examine some records of this Kuṣāṇa ruler to show that he could never have ruled between Kaniṣka and Huviṣka. The first record of this ruler is found on the pedestal of a standing image of Buddha from Sāñchī[6] and is dated in the year 22 of king Vaskuṣāṇa *(Rājño Vaskuṣāṇasya).* The other titles of this king are mutilated and as such we are not in a position to say what other titles he had used in that record. The scholars have so far neglected this Kuṣāṇa king who was a very important one in the history of the later Kuṣāṇa dynasty. Sir John Marshall remarked that 'possibly he was a foreigner who came to power in and around Mathurā after the fall of Vāsudeva Kuṣāṇa'. Fortunately we have another inscription[7] of Vāsiṣka found on the statue of a seated Bodhisattva in Dhyānamudrā recovered from Sāñchī. It is dated in the year 28 of *(Mahārāja)sya (rā)j(ā)t(i)rājya Devaputrasya Sh(ā)hi V(a)s(i)skasya.* It records the installation of an image of Bhāgwat (Bodhisattva). There is another earlier inscription[8] of the time of Vasiṣka which is dated

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5. J.R.A.S. 1924, p. 397 ff., No. 3 &a E.I. Vol. XXI. p. 55.
6. Marshall and Foucher: Sañchī Vol. . p. 386, No. 829.
7. Ibid., No. 830. 8. Vogel: Cat. Mat. Mus. No. Q. 13.

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in the year 24 in the fourth month of summer, and is inscribed on a Yūpa recovered from Īśāpur in Mathurā. This inscription is in pure Saṇskrit and records the setting up of Yūpa.

There are two questions that necessarily arise now. Firstly can *Vaskuṣāṇa* be identified with Vāsiṣka and if so did he belong to the family of Kāṇiṣka or did he rule as a member of the later Kuṣāṇa family? Now a close comparison of the two records would reveal that both of them belong to one ruler. This is evident not only from the palaeographical standpoint, but also due to some other reasons. The language of both is identical. Thus the first record mentions the dedication of an image of Bhāgavat Śākyamuni *(Bhagwato Śākkyam(un)eh pratimā pratiṣṭāpitā)*. The other record also mentions the installation of an image of Bhāgvat *(Bodhisattva Bhaga(va)sya. ...pratiṣṭāpitā)*. Both the statues were recovered in excavations. It would therefore not be unwise to suggest that *Vaskuṣāṇa* should be identified with the Kuṣāṇa king Vāsiṣka. This would naturally mean that Vāsiṣka would have been ruling at Sāñchī from the year 22 to 28 of same era. This however comes into conflict with the reign of Kaṇiṣka whose records are found of the years 22[9] and 23.[10] *Vāsiṣka* cannot be presumed to be ruling as a Yuvarāja, because he is mentioned as a Rāja *(Rājño)* in the inscription. The only alternative left for us is, therefore, to presume that he belonged to the third Kuṣāṇa family, namely, the Kuṣāṇaputra dynasty of which Vamatakṣa was evidently the first ruler. Here it may be asked if Vāsiṣka belonged to the later Kuṣāṇa dynasty who was the ruler between Kaṇiṣka and Huviṣka that is to say between the years 23 and 28. The answer to this question is clear from a record[11] which was first noticed and edited by Growse. The record is dated in the year 28, in the month of winter. The record runs as "... *Ṣkasya rāja saṁvatsare 28, hemanta*". Here the possibility could be that the ruler might have been Huviṣka or Kaṇiṣka. Growse who was the first to notice this inscription mentioned that the king commemorated was most probably Kaṇiṣka for the end of the tail of *n* is just visible and *his other inscriptions were found on the* same spot. This clears the issue. Kaṇiṣka ruled till the year 28 up to winter and was succeeded by Huviṣka. Vāsiṣka need not be a ruler of the second Kuṣāṇa family. We have to shift him to the third Kuṣāṇa family and place him as the second ruler who ruled from the year 22 to the year 28 of some era to which we shall shortly refer to in this paper. So far, not a single coin of Vāsiṣka

9. E.I. Vol. I, No. XXIX., p. 395.
10. J.R.A.S., 1924, p. 397 ff.
11. I.A. Vol. VI, p. 217.

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has been noticed. It is rather strange that a ruler holding such big titles as *Mahārāja Rājātirāja Devaputra Ṣāhi,* didn't issue a single coin in the course of his reign which according to the generally accepted contention so far, extended to a period of four years from the year 24 to 28 of Kaṇiṣka's era. We have presumed that this ruler belonged to the later Kuṣāṇa family and ruled for a period of at least 6 years from 22 to 28 of some other era. Fortunately there are at least two types of coins of *Vasu* a king of the later Kuṣāṇa family which had been noticed by Whitehead.[12] A noticeable feature in the later Kuṣāṇa coins is the appearance of the Brāhmī script. It, therefore, appears certain that *Vasu, Vaskuṣāṇa* and *Vāsiṣka* were names of one and the 'same' ruler. He was thus the second member of the later Kuṣāṇa namely, the Kuṣāṇaputra dynasty. We cann't actually point out the last date of Vāsiṣka. He was succeeded by his son Kaṇiṣka II.

Ārā inscription[13] mentions the name of a king Kaṇiṣka with the titles *Mahārājasa, Rājātirājasa, Devaputra Vājeṣkaputrasa Kaiśarasa, Kaṇiṣka.* The date of this record is the year 41 of some era. The mystery of this Kaṇiṣka was so far shrouded. It was indeed difficult to account for a Kuṣāṇa king all of a sudden in the year 41, when Huviṣka enjoyed an unbreakable rule from the year 28[14] upto the year 62.[15] His dated records are also found of the years 40[16] and 42.[17] Therefore, how are we to account for the presence of this Kuṣāṇa ruler in the year 41 ? At one time, we had presumed[18] that this Kaṇiṣka might be identified with *Kaṇiṣka* I, the founder and the first ruler of the second Kuṣāṇa dynasty, but that theory is now given up. The only alternative is to place this Kaṇiṣka as the ruler of the third Kuṣāṇa dynasty. In his inscription, he is styled as *Vājeṣkaputra* evidently identical with *Vāsiṣkaputra.* We have to presume the death of Vāsiṣka and the accession of Kaṇiṣka II, somewhere between the years 28–41. We are not in a position to say how long did this king Kaṇiṣka rule, but he was certainly a big ruler of the later Kuṣāṇa family as his titles suggest. The coins of this ruler Kaṇiṣka II have also been found. Whitehead has referred[19] to several coins of Kaṇiṣka evidently Kaṇiṣka II of the later Kuṣāṇa dynasty. Here also Brāhmī characters appear on the obverse. This is an evidence of their belonging to the later Kuṣāṇa family. We definitely know that

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12. Cat., nos. 236, 237.
13. C.I.I. Vol. II. Pt., I, p.162.
14. E.I. Vol. XXI. no. 10, p. 55 ff.
15. E.I. Vol. II. no. XIX. p. 204.
16. Vogel–Cat. M.M., no. C. 13.
17. Ibid., no. E. 25.
18. J.I.H., Apl. 1940, p. 30 ff.
19. Cat, no. 231-235.

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the earlier Kuṣāṇa rulers did not use Brāhmī characters on their coins. The palaeography of these letters also suggests considerable development as compared with the letters of the Kuṣāṇa Brāhmī inscriptions. Thus the letter र्ं vi between the feet of king Vuas is more akin to the Gupta Brāhmī letters. It would not be unwise to suggest that Kaṇiṣka II like his father Vājeṣka evidently Vāsiṣka belonged to the later Kuṣāṇa dynasty.

Besides Vamatakṣa, Vāsiṣka and Kaṇiṣka II, there was still another Kuṣāṇa ruler of this family namely Kaṇiṣka III, whose inscription[20] was discovered by the late Rai, Daya Ram Sahni, Bahadur in an enclosed part of the Dalpat ki khirki mohalla at Mathurā and published by him in the Epigraphia India. This inscription is very important. It has many new features to note. Firstly, it is the first Kuṣāṇa record where the month is quoted by Hindu solar name instead of the season name as in other Kuṣāṇa records. Secondly, Buddha is mentioned for the first time as a Deva *(Buddhasya Svamatasya Devasya)*. Thirdly, the palaeography indicates that the letters bear close resemblance to the Gupta script. Thus, the late Rai Bahadur pointed out "*ma* everywhere shows the advanced form of the Gupta period with a small knob attached to the left of the letter instead of the triangular base. Similarly, the *akṣara* 'ha' assumes the form peculiar to the eastern variety of the Gupta script in which the horizontal base stroke is completely suppressed." The date of this record is 14 according to R. B. Sahni, but a closer examination of the estampage makes it rather certain that the date is 84 and not 14. There are two *knobs* interlocked together which indicate 8 and not 1. This can be easily testified to, if we compare it with the letter for 8 of the Gupta times in Bühler's chart. Therefore, if the date of this record is 84, it is absurd to presume that he was the greater king Kaṇiṣka I. The palaeography, date and other important points mentioned above definitely point to the fact that this Kuṣāṇa ruler was not far removed from the Gupta period by date or time. We need not identify him with Kaṇiṣka II of the Ārā inscription, but he should be considered as Kaṇiṣka III. There is one more point that goes against the identification of this ruler with Kaṇiṣka I, namely the find-spot of the inscription. It was found in an elevated part of the Dalpat ki khirki Mohalla and not in the Kañkālī Tīlā where the inscriptions of Kaṇiṣka were found. Thus we have been able to suggest that the last ruler of the *Kuṣāṇaputra* or later Kuṣāṇa dynasty was Kaṇiṣka III who ruled in the year 84 of some era to which we shall refer to now.

We have asserted that Kaṇiṣka began to rule from the year 140

20. E.I. Vol. XIX. p. 90 ff.

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A.D. His dynasty continued for a period of 98 years, that is to say till the year 238 A.D. Therefore, the Kuṣāṇaputra or later Kuṣāṇa dynasty should be assigned after this date. The only known era to which we can refer the dates of the later Kuṣāṇa records, is the so called kalachuri era of 248-49 A.D.[21] This would mean that Kaṇiṣka III ruled in 84+248—249 A.D. = 332—333 A.D. and as much may have been a contemporary of SamudraGupta. In the Allahabad Pillar Inscription, SamudraGupta mentions a foreign Ṣāhi prince with whom he maintained diplomatic relations. Here it is not possible to suggest, if the Kuṣāṇa empire at that time was circumscribed to Mathurā proper or it included North-West India also. It is of course certain that Kaṇiṣka II of the Ārā inscription was ruling in that region. About Kaṇiṣka III, it may be suggested that possibly he also ruled in the North-West India and the Nāgas of Mathurā were owing allegiance to him. SamudraGupta destroyed the Nāgas. Kaṇiṣka III was, possibly, not strong enough to give a fight to the Indian Chakravartī king Samudra-Gupta and he thought it better to maintain diplomatic relations with him. From the inscription it is clear that till the year 332-333 A.D., Mathurā was still in the hands of the Kuṣāṇas as overlords.

Chronology of the Later Kuṣāṇas or Kuṣāṇaputras.

Vamatakṣa 248/49 A.D. — 268 A.D.c.
Vāsiṣka—22-28=270-278 A.D.c.
Kaṇiṣka II year 41=289 A.D.c.
Kaṇiṣka III year 84=332 A.D.c.

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21. It was presumed by some scholars that Kaṇiṣka's era could be identified with the Kālacuri era of 248-9 A.D. This theory has been given up by its supporters. Recently, Mr. H. R. Khunkar in his Pre-Gupta chronology has also suggested that this era should be associated with the later Kuṣāṇas. He did not go into greater details so as to bring forth a connected link between the Kuṣāṇa and the Gupta period. (I.C. Vol. IV, p. 411 ff.).

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BLOOD GROUP DISTRIBUTIONS OF THE BENGALIS AND THEIR COMPARISON WITH OTHER INDIAN RACES AND CASTES

By B. K. Chatterji and A. K. Mitra

The study of the blood group distribution of the people of Bengal offers an important clue for determining the racial position of the people of Bengal and the supposed Mongoloid strain in their composition. The comparatively reliable data on the Bengali blood group distribution so far available are shown below (Table I).

Table I*

No.	Population	Locality	No.	O%	A%	B%	AB%	p	q	r	Investigator
1	Brahman	All Bengal (?) (♀ Dufferin Hosp)	125	35·20	29·60	29·60	5·60	·212	212	·593	Macfarlane
2	Brahman	All Bengal (?) (Trop. School)	201	37·81	19·90	35·32	6·97	·145	·240	·615	Greval & Chandra
3	Kayastha	W. Bengal (♂ 30 & 30 ♀)	60	40·00	21·67	30·00	8·33	·163	·215	·632	Chaudhuri
4	Kayastha	All Bengal (?) (Dufferin Hosp.)	200	32·00	23·00	37·50	7·50	·176	·268	·566	Macfarlane
5	Kayastha	All Bengal (?) (Trop. School)	149	35·57	19·46	40·27	4·7	·129	·258	·596	Greval & Chandra
6	Brahman & Kayastha	Budge Budge (24 Pargs.)	100	43·00	17·00	29·00	11·00	·151	·225	·656	Macfarlane
7	Vaidya	All Bengal (?) (Trop. School)	50	64·00	16·00	18·00	2·00	·094	·106	·800	Greval & Chandra
8	Mahisya	Budge Budge (24 Pargs.)	160	32·50	20·00	39·40	8·10	·152	·275	·570	Macfarlane
9	Bagdi	,,	107	29·91	24·23	35·52	10·28	·191	·264	·547	Macfarlane & Sarkar
10	Mahomedan	,,	120	28·30	23·30	40·00	8·30	·174	·282	·532	Macfarlane
11	Mahomedan	Urban	186	33·10	29·40	30·98	6·60	·200	·209	·575	,,
12	Mahomedan	All Bengal (?) (Trop. School)	321	29·50	24·60	36·40	9·30	·188	264	·548	Greval & Chandra
13	Bengalis (mixed)	W. Bengal	311	37·90	19·30	34·10	8·70	·151	·244	·616	Chaudhuri
14	Mahisya, Artisan, Pod Bagdi, etc.	Budge Budge (24 Pargs.)	320	30·90	22·20	40·00	6·90	·158	·271	·556	Macfarlane

* In view of the inadequacy of many of the samples on grounds stated in the text the data included in this and following tables have not been subjected to further statistical treatment.

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The data tabulated above have certain shortcomings, viz., firstly, the small size of the samples. Unlike other countries where serological research has been undertaken, the Indian data do not run up to thousands, and any clue as to racial history from them needs must be followed up with extreme caution. Secondly, considerable difficulty arises owing to ignorance of the nature of the caste organisation, too commonly met with in field-workers and hospital officials. Such statements as, for example, that "Hindu society is endogamous in varying degrees within the caste, and miscegenation is rare in most regions. Each caste is therefore a biological strain differing more or less from the others" (Macfarlane), must be accepted with a great deal of caution. "The hypothesis ..... that these communities have been genetically separated for millenia," which according to the same author, *"does not fit well"* with the data of B distribution from all over India, is not in accord with the data of social history, for intercaste marriages were fully recognised in Bengal as late at least as the 7th Century A.D.,[1] and can only have ceased in comparatively recent times. There was, however, a tendency to the formation of territorial divisions within the same caste, which have been ignored by all workers. Macfarlane's hospital data on Brahman females with their equal strength of p and q is a case in point. This is particularly to be regretted in the case of Greval & Chandra, who investigated large samples, without noting whether the Brahmans, Kayasthas, Vaidyas, were of *Radha, Banga* or *Varendra* origin. Their largest sample, comprising 504 individuals is practically useless, the castes being not recorded ; the same applies to their 238 non-Bengalis and depressed-class Bengalis. The data collected by Macfarlane, Macfarlane & Sarkar, on Brahmans and Kayasthas, Mahishyas, Mahomedans (rural), "depressed classes", and the Bagdis may be legitimately held to throw light on conditions prevailing in the 24 Parganas only, and not of the whole of Bengal as claimed. Small samples of populations which are numerically small and necessarily inbred, may easily constitute a pitfall. This applies to the Vaidyas, 50 of whom typed by Greval & Chandra yielded a formula of O=64%, A=16%, B=18% AB=2%. Carelessness in sampling renders Chaudhuri's data on Kayasthas (154)

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1. Basak, Radhagovinda,—Tipperah Copper Plate Grant of Lokanātha.—*Epigraphia Indica,* vol. XV, pp. 301-15. [Intercaste marriage was in vogue in India till the tenth century A.D.; see R. C. Mazumdar, Corporate Life in Ancient India, second edition, pp. 372-4. That intercaste marriages are still valid under Hindu Law was recently contended by the District and Sessions Judge, Surguja State, in the Statesman, 5th March, 1941.—Ed.]

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of W. Bengal, incorported by previous authors in their lists, altogether useless. On reference to his original paper, "Blood Grops & Heredity" it is found that the data are collected from 30 families as follows (Table IA).

Table IA

'Groupings after Moss

Matings.	No of families.	Children in group I	II	III	IV	Total
III—III	4	0	0	16	4	30
III—IV	7	0	0	24	18	42
IV—IV	5	0	0	0	26	26
IV—II	4	0	9	0	8	17
II—II	3	0	13	0	3	16
II—III	2	6	2	3	1	12
II—I	1	3	2	0	0	5
IV—I	3	0	6	7	0	13
III—I	1	3	0	0	0	3
Total	30	12	32	50	60	154

The total of 30 families, i.e. 60 parents has been included in our lists with considerable hesitation, there being no information that "sibs" are not included.The absence of I×I matings is noteworthy.

Lastly, mention must be made of artificial groupings such as "Artisans and Traders" (Macfarlane), comprising "Paromanic, Tanti, Goala, Dhoba, Beni" etc. (85), with O=29.3%, A=25.9%, B=38.8%, AB=5.9% ; "Depressed classes" (Macfarlane), comprising Pod, Bagdi, Namo, Mal, and Rajvansi (75), with O=29.3%, A=22.7%, B=42.7%, and AB=5.3%; "Depressed class Bengalis" (Greval and Chandra) of whose caste origins no information has been published (160), with O=38.75%, A=23.75%, B=30.62%, and AB=6.87%; "Non-caste Hindus" (Macfarlane) comprising the artisan and depressed groups (320), with O=30.9%, A=22.2%, B=40%, and AB=6.9%; as well as "Mixed Bengalis" (Chaudhuri), comprising individuals of "all castes and creeds." Such groupings imply a disregard of existing social conditions, which is deplorable unless the similarity of blood groupings of the groups included is first demonstrated.

An analysis of the distribution of Bengali blood groups should, in our opinion have the following objects in view :—

Firstly, *to determine whether any stratification is noticeable in*

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the castes in respect of this physiological character. It is claimed by Macfarlane that in lower Bengal, "the percentages of A & B .... increase from the higher to the lower castes and that the highest percentage of O is among the caste Hindus. The Bengali Depressed Classes have the highest percentage of B yet found in India."

Secondly, *to determine if the blood groups are distributed in the same strength uniformly throughout the country and the same stratification is present everywhere,* a conclusion that may be deduced as a corrollary of Macfarlane's claim that "the 24 Parganas District is ethnologically representative of Bengal and that serological conditions elsewhere are similar."

Thirdly, *to determine whether the blood group distribution is similar and the groups appear in the same strength in the neighbouring provinces as in Bengal.* And lastly, *to determine whether the Bengalis are differentiated in any way from the aboriginal (Nishada) and Mongolian (Kirata) tribes.*

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It appears from Table I, that the hospital data of Macfarlane, Greval and Chandra, comprising Brahmans (Nos. 1 & 2) Kayasthas (No. 5) and the Vaidyas have higher values of r than the Bagdis (No. 9), Mahomedans (Nos. 10 and 12). But the hospital series 1, the Brahmans, differ in respect of p and q from all the other groups, while the Vaidya data (No. 7) may be left out of account owing to the highly inbred character of the caste. The values of r among the Kayasthas of Macfarlane (No. 4) and her Mahisyas are similar. Hence, the stratification in respect of r may be true only of the 24 Parganas, as shown by numbers 6, 8, 9, 10, and 14. In the absence of data from other parts of Bengal its further extension is hardly admissible on the present evidence. Chaudhuri's seris Nos. 6 & 13 are too unreliable for drawing any legitimate conclusion as to the strength of r in W. Bengal. The highest values of p and q together, found among Brahmans (No. I) and Kayasthas (No. 4) do not differ much from those of the Mahisyas (No. 8), Bagdis (No. 9) and Mahomedans (Nos. 10 & 12). The highest frequency of p is found among the Brahmans (No. 1), in almost the same strength as among the urban Mahomedans, the next in order being Bagdis and Mahomedans of the 24 Parganas. If Macfarlane's artificial group "Depressed Classes" have the highest percentage of B, it is to be noted that that does not come out in her "Non. Caste Hindus" group (No. 14) as could have been expected. The highest value of B is found among the rural Mahomedans of the 24 Parganas (No. 10), not improbably due to local conditions and not found among the urban Mahomedans (No. 11), and those of Greval & Chandra (No. 12). The Bagdis and Mahisyas of the 24 Pargans have the highest frequencies of q among the caste

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groups, equally probably a local condition. The Mahomedans of Greval and Chandra (No. 12) come up as high. In Table IB comparison is made with some other Mahomedan groups.

Table IB

Blood Group distributions of the Bengali and other Mahomedan populations.

No.	Population	Locality	No.	O%	A%	B%	AB%	p	q	r	Investigator
1	Mahomedan	Budge Budge (24 Pargs.)	120	28·30	23·30	40·00	8·30	·174	·282	·532	Macfarlane
2	,,	Urban	136	33·10	29·40	30·90	6·60	·200	·209	·575	,,
3	,,	All Bengal (?) (Trop. School)	321	29·50	24·60	36·40	9·30	·188	·264	·548	Greval & Chandra
4	,,	Santal Pargs	29	34·48	27·59	31·03	6·89	·191	·212	·587	Sarkar
5	Arabs	Syria	1149	38·00	34·00	20·00	8·00	·238	·151	·616	Altounyan
6	Muslim	Boarij, Syria	131	23·70	37·40	29·80	9·10	·295	·244	·487	Boyd & Boyd
7	,,	Meshghara, Syria	199	44·70	40·20	11·60	3·50	·252	·081	·669	,,
8	Arabs	Cyrenaica	2917	44·00	33·00	17·70	4·10	·215	·123	·663	Tedeschi & ors.
9	Egyptians		417	24·20	32·60	29·20	13·90	·269	·246	·492	Shousha
10	,,		417	24·00	32·00	30·00	14·00	·265	·252	·490	Mooks
11	Mahomedan	Tunis	500	46·40	32·40	15·80	5·40	·211	·112	·681	Caillon & Disdier
12	Turks	Macedonia	500	36·80	38·00	18·60	6·60	·256	·135	·607	Hirschfeld
13	Turkoman	Turkistan	694	28·70	36·50	26·60	8·20	·256	·193	·536	Minkiewicz
14	Baluch	Quetta & Past, Inst., Kasauli	74	47·20	24·30	24·30	4 20	·154	·154	·687	Malone & Lahiri
15	Hazaras	,,	100	32·00	25·00	39·00	4·00	·157	·254	·566	,, ,,
16	Pathans	,,	150	29·30	31·30	33·30	6·10	·209	·222	·541	,, ,,

In the above Table the series Nos. 5-13 make it clear that r varies considerably among the followers of Islam, reflecting local conditions. The same applies to q and the relative values of p and q. In common with other near-eastern groups, the Arabs of Syria and Cyrenaica show a preponderance of A over B, (it is true, in a variable measure), and the same applies to the Tunisians, the Macedonian Turks and the Turkomans of Turkistan. Among the Egyptians also A predominates over B, though not appreciably, the values of q having risen at the expense of r. Another case reflecting local conditions no less strongly is that of the Baluch, with very high r and low and identical values of p and q. The Pathans on the other hand show a much lower

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value of r and a predominance of q over p which is by no means appreciable. No less interesting are the Hazara, with their huge preponderance of q over p, a phenomena that may not be unrelated to their absorption of mongolian elements.

Contradistinguished from the above (we draw no comparison with the Hazara for reasons stated *ante*), the Bengali Mahomedans (Nos. 1 & 3) show an appreciable predominance of B over A, with values of r higher than those of the Egyptians and the Boarij (Syrian) Muslims, but considerably lower than those of the Arabs of Syria, Cyrenaica, Tunis and the Syrian Muslims of Meshghara. Were we to go by the values of r alone, the kinship of the Bengali Mahomedans with the Pathans and Turkomans would stand beyond question! But the relative values of p and q leave no room for doubt that they are neither akin to the Arabs nor the Egyptians, nor to the Pathans, Turks and Turkomans. Their true kinship is with the people of the Bengali castes, in contrast to the Mahomedans of Tunis, a typically Arab city.

Coming to details, however, it is noticed that the urban Mahomedans (No. 2) are not without a certain resemblance to the Pathans in the relative strength of their p and q. Indeed it would be no surprise to learn that the series includes non-Bengali Mahomedans, who are numerically strong in Calcutta. On the other hand, the very high values of q among the Mahomedans of Budge Budge is apparently a purely local condition as also shown by tht Mahisya (I,8) etc. of the same locality. Sarcar's data from the Santal Parganas might suggest, were they not too few, that B increases from there to S. W. Bengal among the Islamic population. The parity of the Bengali Mahomedans and the Hindu castes in respect of their blood groups constitution should be, however, accepted with caution. Mahomedan samples from Murshidabad, Dacca, Sylhet and Chittagong are wanted so that more light can be thrown on this question.

In table II we include the Gypsies, who are presumed to have emigrated to Europe from India during the 12th century A.D., besides some of the data from other parts of India for comparison with the Bengalis.

Table II

Blood group distributions of the Gypsies and other non-Bengali Indians

No.	Population	Locality	No.	O%	A%	B%	AB%	p	q	r	Investigator
1	Gypsies	Voivodina	529	35·90	29·30	26·10	8·70	·213	·193	·599	Schmidt
2	Gypsies	Hungary	102	26·50	27·40	37·80	8·80	·201	·266	·515	Hesch

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No.	Population	Locality	No.	O%	A%	B%	AB%	p	q	r	Investigator
3	Gypsies	Hungary	385	34·20	21·10	38.90	5·80	·145	·256	·585	Verzär and Weszecsky
4	Hindus, (Gurkhas, Garhwalis, Rajput, Jats, Kumaonis)	N W. India and sub-Himalayan region	1000	31·30	19 00	41·20	8·50	·149	·291	·559	Hirschfeld
5	Rajputs	Rajputana(?)	118	28·80	28·00	33·00	10·20	·214	·246	·537	Malone & Lahiry
6	Jats	Punjab & Kashmir	277	33·20	24·50	35·50	6.80	·171	·240	·576	,, ,,
7	Khatris	,,	99	38·30	25·30	30·30	11·10	·203	·234	·577	,, ,,
8	Hindus (Various castes)	Agra & Oudh Provs	2357	30·20	24·50	37·20	8·10	·179	·260	·550	,, ,,
9	Hindus	Goa	200	33·50	24·50	31·00	11·00	·197	·238	·579	de Figueiredo
10	Marathas	,,	400	29·30	26·70	34·00	10·00	·204	·252	·541	Correia
11	Banjaras	Hyderabad State	43	39·50	21·00	34·90	4·60	·137	·222	·628	Macfarlane
12	Todas	Nilgiri Hills	200	29·50	19·50	38·00	13·00	·178	·300	·545	Pandit
13	Malaylis (lower castes)	Cochin	260	48·10	29·30	16·10	6·50	·199	·120	·694	Macfarlane
14	Nairs	,,	121	38·80	35·50	22·40	3·30	·218	·138	·623	,,
15	Tamils (coolis mixed)	S. India & Ceylon	348	37·90	23·00	31·60	7·50	·166	·220	·616	Bais & Verhoef
16	Tamils (mixed)	Madras	1740	48·10	24·00	29·40	8·50	·154	·181	·657	Naidu & Nathan
17	Tamil (non-Brahman)	,,	50	42·00	28·00	24·00	6·00	·188	·163	·648	Macfarlane
18	Khandaits	Orissa	60	45·00	18·30	25·00	11·70	·163	·204	·671	,,
19	Assamese	Dibrugarh and other areas	2000	33·65	24·55	32·55	9·25	·186	·237	·580	Mitra

In the above Table the Gypsies (Nos. 2 & 3) bear comparison with some of the Indian groups for their high percentages of B. Those of Voivodina (No. 1) are characterised by a high frequency of r and a predominance of p and q, thus differing from the other Gypsies of Hungary,—a fact which requires further explanation. Of special interest, however, is the series of Verzär and Weszecsky (No. 3) which is not without a certain resemblance to the Mahisyas of Bengal (I, 8). Hirschfeld's mixed group of Hindus serves to indicate the high frequencies of q to be expected in the populations which comprise it. But the Rajputs, Jats and Khatris (Nos. 5-7) do not justify these expectations. Further research alone can show whether the sub-Himalayan

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population of Garhwal, Kumaon and Nepal possess B in such a high degree. For values of A relative to B, and the frequencies of A alone the Rajputs, Jats and Khatris all differ strikingly from those of Hirschfeld's Hindus. The Agra and Oudh Hindus (No. 8), while showing a general resemblance to them, differ in having a lower frequency of *r* and a higher of *q*, thereby approaching some of the Bengali groups in this respect, Macfarlane's Mahisyas (I, 8) and Bagdis (I, 9) and Greval & Chandra's Calcutta Mahomedans in particular. A resemblance is also noticeable between the Jats (no. 6) and Macfarlane's Kayasthas (I, 4). When due importance has been attached to the fact that some of the Bengali groups, though not all, appear to show higher values of O and B than those of the Punjab and Kashmir, it is also clear that B percentages tend to increase from the Punjab towards the east along the Ganges valley. Indeed, when the hiatus in our knowledge of the blood-groups constitution of Northern India has been filled up by data from Behar and some of the Bengal districts, South-west Bengal or some section of its population at least may turn out to be a continuation of Northern India in respect of blood group distribution. In the paucity of such data,[2] however, and consi-

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2. The only other data known to us from this area of 175 Hindus of Lucknow (Oudh) seem to point in the same direction. These are Kayaths (47), O=41.4% ; A=19.7% ; B=30.6% ; AB=8.3% ; Chhatris (36), O=36.5% ; A=21.8% ; B=35.0% ; AB=6.7% ; and Chamars (92), O=38.3% ;A=13.3% ; B=38.3% ; AB=10.0% (Majumdar, Science & Culture, V, 521). See Majumdar, "Blood Groups of Criminal Tribes", "Science & Culture", Vol. VII, p. 334 ff. for blood groups of the Bhatus (113) and Karwals (155) of Oudh. The figures are :–

	O	A	B	AB
Bhatus	31	28	45	9
Percentage	27.4%	24.7%	39.8%	7.8%
Karwals	40	35	63	17
Percentage	25.8%	22.6%	40.6%	10.9%

The two groups show a certain resemblance to the Mahomedans of Macfarlane (I,10). If supported by further research, their high values of B which are comparable to some of the Bengali groups may be regarded as corroborative of this assumption. See also, Majumdar "Blood Groups of the Doms," Current Science, vol. II, pp. 153-54, which appears as this is going to the press. Of similar tendency as the Kayaths and Chamars of Lucknow are the Doms of Gorakhpur (180), O=32.8% ; A=22.8% ; B=39.4% ; & AB=5.0%, showing a general resemblance to the N. W. Indian data of Hirschfeld (II,4) and the Hindus of Agra and Oudh Provinces (II.8), and also the Bengali Kayasthas and Mahisyas of Macfarlane (I, 5 and 8). The Hill Doms of Dehradun (125), O=36.0% ;

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dering that the high percentage of B in the large mixed sample of Hindus from Agra and Oudh suggests the presence of castes with similar blood groups constitution in those provinces, it would appear rather premature to assume, as Macfarlane does, that B "may have originated in the ancestors of the lower castes of N.E. India [or any part of it], where the highest concentrations [of B] are found now, whence it has diffused into the higher castes."

The problem of the origin of B in India has strongly exercised the minds of blood-group workers, of which the above represents the latest phase. Macfarlane, in commenting on the blood-groups of 75 Adi-Hindus (Hyderabad State), a species of "Depressed classes", for which this distinguished colleague has a peculiar *penchant* (O—32% : A—18.7% ; B—44% ; AB—5.3%) observes :—"The blood-group proportions among these people in the Deccan are strikingly similar to those of the Depressed Classes of Bengal south of Calcutta, including the Mahisyas. Dr. Guha's opinion that the basic social stratum is a fairly homogeneous one over most of India is given support by these data. It is over a thousand miles from Calcutta to Hyderabad, Deccan .... If agglutinogen B has spread through the world largely from India ....., then one of the chief sources here seems to have been the ancestors of the present Depressed Classes." Earlier she writes, *apropos* of 33 Hindu Bhils with O=42.42% ; A=9.11% ; B=45.45% ; AB=3.03%, — "The Pods of Bengal [54] are the only community previously reported to have this type of distribution [O=35.19% ; A=16.67% ; B=42.55% ; AB=5.56%. Sarkar] .... It may be that in the Bhils we have one of the reservoirs of Group B in India from which it has percolated to higher social castes." We note that the method of B *contamination* has been noticed by the same author in the case of the Farahabad Chenchus (B=30%), through the infectious agency of Forest Guards, *apparently of Group B !* It is also well known that the Bhils have absorbed much blood from the neighbouring higher populations, particularly in Rajputana. Inbreeding is also at work in creating these supposed reservoirs of high B ! There are, for example the Moslem Bhils, who "intermarry among their own small group." "Of 11 of their blood samples 8 turned out to be B and the rest group A, which is indicative of their inbred condition, even in this small lot." Finally we have the autho-

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A=20.0% ; B=33.8% ; B=10.2%, differ similarly from the Bhatus and Karwals in respect of the O percentages, and show close resemblance to the Bengali Brahmans of Greval & Chandra (I,2), with slightly higher percentage of AB.

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rity of Sarkar, who investigated the Pods mentioned above, that his data appertain to a few families!

There is however no mystery about the racial origin of the depressed castes. In the main two great races come into question, the aboriginals and the Europid Indians, (unless one chooses to raise the spectre of a submerged mongolian race in the Indian population). Of these, the Europid races of India being at present the partially unknown quantity as regards their blood-groups constitution, we proceed to study the aboriginals. (Table IIA).

Table IIA

Blood Group Distribution of Indian Aboriginal Tribes

No.	Population	Locality	No.	O%	A%	B%	AB%	p	q	r	Investigator
1	Dravidians, Oraons Mundos & Santals.	Chota Nagpur	589	24·30	27·50	36·80	11·40	·218	·280	·493	Malone and Lahiry
2	Oraons		155	47·10	12·90	34·84	5·16	·088	·219	·687	Sarkar
3	Munda	Chota Nagpur	120	33·33	30·00	29·17	7·50	·219	·214	·577	Sarkar
4	Santals	Santal Pargs.	339	33·04	20·94	34·81	11·21	·160	·249	·575	Sarkar
5	Māle (Hills)	Santal Pargs.	235	42·13	25·53	26·81	5·53	·167	·181	·649	Sarkar
6	Māle (Plains)	,,	34	29·41	8·82	50·00	11·76	·109	·382	·542	Sarkar
7	Malpaharia	,,	23	39·13	30·43	21·74	8·70	·220	·166	·626	Sarkar
8	Maria Gonds	Bastar	123	28·50	26·00	34·10	11·40	·215	·258	·533	Macfarlane
9	Chenchu	Hyderabad	80	37·50	38·75	15·00	8·75	·275	·127	·612	,,
10	Iluvas	Cochin	77	58·30	24·20	12·20	5·30	·160	·092	·764	,
11	Predravidians	Madras	?	48·00	30·00	9·00	12·00	·245	·117	·693	,
12	Paniyans	Malabar	250	20·00	60·40	7·60	10·00	·475	·103	·447	Ayappan

Table IIA clearly shows that the values of r are very high in some of the groups, viz., the Iluvas, Oraons and Hills Māle (Nos. 10, 2 and 5) sinking considerably among the Paniyans (No. 12). There is a striking variation in the A percentages (Plains Māle = 8.82%; Oraons = 12.9%; Paniyans = 60.4%). No less striking is the variation in percentages of B (Paniyans = 7.6%; Oraons = 34.8%; Plains Māle = 50). The Chenchus, the Iluvas, the "Predravidian" tribes of Madras and the Paniyans, all show little B, but the Paniyans (No. 12) behave peculiarly in having a value of r much lower than the other southern tribes as well as the highest percentage of A, so far met with

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in India. But for the common feature of a low incidence of B% the four south Indian series vary greatly, particularly in the relative values of O and A.

Compared to them, the Central Indian and the North Indian groups show considerably higher percentages of B, but their behaviour in respect of the three groups is also peculiar. The Munda (No. 3) and Hills Māle (No. 5) alike show almost equally high values of A and B, but there the resemblance ceases, owing to the divergence in O. The high B% among the Plains Māle seems to be due either to contact with other people in B, or indirectly to the operation of some selective factor as among the Mahomedan Bhils. The Oraons, Santals and the Maria Gonds (Nos. 2, 4 and 8) show a predominance of B over A, but among the Oraons A is too low while the Santals and the Maria Gonds conform to the north Indian formulae. The Malpaharias with their comparatively high B and A predominating over B constitute a mystery.

Compared to the aboriginal tribes tabulated above, the behaviour of the Bengali Hindu castes and the Bengali Mahomedans is very uniform, in as much as all the Bengali groups so far known, show high percentages of B dominating over A. And the one Bengali group, which still shows a totemistic social division, and high percentage of dolicho-cephaly associated very often with darkbrown skin colour (though brachycephals are by no means wanting), differs from the aboriginals in having a lower percentage of O. It would be too hazardous to maintain in the circumstances that the Bengali castes, elevated or depressed, derive their B from the aboriginals.

But the similarity of the Santals and Maria Gonds to the Bengalis, considered together with the high incidence of B among the central and northern aboriginals and of the very low B among the southerns is a matter of utmost importance to the study of Indian raciology and miscegenation. Special mention must be made of v. Eickstedt's hypothesis, with its evolutionary orientation. This hypothesis recognises two distinct races among the Indian aboriginals, viz., the "Weddids" and the "Melanids". Of these the "Weddids" fall into two sub-races, viz., the "Malids" and the "Gondids". The "Malids" living in the South Indian hills show the more primitive theromorphic features, and are darker in skin colour. Typical are the Panyan of Wynaad, Kadar, Kurumba etc. The "Gondids" extend from the jungles of the Deccan northwards, being found best in Central Provinces and Central India. To this branch belong the southern Bhils, Baiga, Bhuiya, Oraon, Gond, and Khond. These "Gondids" show, specially among their menfolk, a somewhat longer face and taller sta-

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ture, greater quantity of hair, less broad noses with high nasal bridges than appear among other "Weddids". v. Eickstedt who regards them as the more *"progressive"* race, notes that while their women preserve the antique racial characters better, their men sometimes show, though rarely, a confusing similarity with the phylogenetically higher "Indid" race. The skin colour among the "Gondids" is a moderately light shade of brown, which is not as light as that of the "Indids". The Oraon of Chotanagpur, and still more the Munda have been strongly influenced by the "Melanids," who are found both in the North and the South. The typical representatives of their northern branch are the Santals, and the Hos, while the 18 millions Tamil of Carnatic represent the southern branch. The Chenchu constitute one of the somatic transitions between the two. Their facial type is rectangular, broad jawed, and moderately low ; forehead steep, thrust forward over the root of the nose : the nasal bridge straight, high and the lower end of the nose moderately broad, the resulting form being the same as that of the "Indids." The alae and the tip of the nose show no primitive traits. The chin is weakly developed but not retreating. The oral fissure straight. The full lips and the strongly mesorrhine nose could be held as "negrid" characters, but the "Europid" races, e.g., the "North-indids", show full lips. "All other characters, including the medium body-height, the long head-form and the form of the orbital fissure could be held to be altogether europid in a broad sense of the term. One concludes paradoxically, that were they not black, they could well be counted among the 'white race.' 'Negrid' and an inheritance from the southern man is the dark skin colour ; the nose form, lips, chin and hairform are intermediate between the negrid and the europid ; the cut of the face and the bridge of the nose are europid. The broad jaws, the characteristic forehead and triangular nose are common to both racial circles—the Indids show similar features and hence are to be construed as the europid race somatically nearest to them....." Similar progressive tendencies appear among the Melanesians, "some of whom,.... show a combination of europid characters, with the exception of hair and skin colour..." "A proto-melanesid element can be assumed to be the common basis for malids, melanids and the progressive Melanesids ..... This melanid race went through, in course of time, a persistent 'Indisierung' (Indiisation). Owing to the progressive tendencies inherent in the race, the older Indisations are scarcely to be determined. Only the recent immigrants, as different sections of Brahmans, stand out from the mass of the population by dint of their stronger 'Indoid' type."

Following the above classification we have the undermentioned arrangement of the tribes. (Table IIB).

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Table IIB

Race	Tribe	O%	A%	B%	AB%	p	q	r
Malid	Panyan	20·0	60·4	7·6	10·0	·475	·103	·447
Gondid	Bhil	42·4	9·1	45·5	3·0	·062	·282	·651
,,	Gond	28·5	26·0	34·1	11·4	·215	·258	·533
,,	Oraon	47·1	12·9	34·8	5·2	·088	·219	·687
,, Melānid	Munda	33·3	30·0	29·2	7·5	·219	·214	·577
Northern	Santal	38·0	20·9	34·8	11·2	·160	·249	·575
Intermediate	Chenchu	37·5	38·8	15·0	8·8	·275	·127	·612
Southern	Tamils (Carnatic) Tamil non-Brahmans, Madras (H. 17)	42·0	28·0	24·0	6·0	·188	·163	·648

It is a matter of satisfaction that the serological differences between the Panyans and the Chenchu also correspond to racial differences as claimed by the above hypothesis ; also that the "gondids" uniformly show a high percentage of B, notwithstanding the fact that the distribution is only similar among the Bhils and the Oraons, in spite of the "melanid" component of the latter. The serological position of the "melanids" is uncertain. The Tamil non-Brahmans, if they are the "Pariyar", are according to v. Eickstedt strongly mixed, with a predominant "melanid" strain. Hence their mixture might explain their high B%. Among them, as among the Chenchus, A% still predominate over B%. The northern "melanids", represented by the Santals, however, present a blood group distribution which imperils the entire structure of v. Eickstedt's hypothesis. Its affinities are with the "Gondids" and the North Indian groups. Have we here a further testimony merely of the progressive serological character of the "gondids" and the "melanids",—in fact a physiological parallel to their morphological position ? But can we shut our eyes to the fact that like Bhils, Gonds and Oraons, the Santals have been long exposed to contact with Hindus of higher races ! So that the question has to be put, both for the "gondids" as well as the "melanids", whether the progressive traits—be they serological or morphological—to be found among them are not due to miscegenation with the higher racial elements of the Indian population ! As Prof. Lebzelter rightly observes.—"Es ist überhaupt sehr schwierig aus den zahllosen Lokaltypen Südasiens die Mischlinge und die ursprünglich rein erhaltenen Typen herauszulesen. Theoretisch wäre es ja immerhin möglich, eine ganze Reihe von Spezialisations-stufen, die einerseits zu den Austra-

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loiden und Mongoloiden, andererseits zu Europäiden und Negroiden führen, herauszulesen."

Returning to Table II, we find that as we move to the north-west from Bengal, the Jats and Khatri of Kashmir and the Punjab show quite high values of B, with higher percentages of A than in Bengal. The Rajputs to their south show still higher percentage of A with less O and somewhat lower B. In the absence of data on the individual Rajput clans too great emphasis must not be laid on these percentages. None the less, the similarity between the Maratha and the Rajput formulae is striking and doubly interesting because of the traditional Rajput origin of some of the Marathas[3]. Among the Rajputs, Marathas, Hindus of Goa, Tamils (II, 15-16) of South India and Ceylon, Khandaits of Orissa (in so far as they reflect serological conditions in that province), B tends to be lower than in the Indo-Gangetic plains, though with less divergence between the relative values of A and B. One gets the impression that B decreases in strength as we move to the south and that the corridors of Konkan, Carnatic and Orissa lodge populations who with variable values of O, A and B, show similar preponderance of B over A. The affinities of Konkan seem to be greater with N. India, than are those of Carnatic and Orissa[4], but the fundamental difference between the west coast and the east coast populations suggested by the stronger values of O among the latter needs testing by further detailed investigation. The Assamese show as well a N. Indian type of formula, almost agreeing with that of the Hindus of Goa, with a slightly higher B than among the Khatris (II. 7.), It would be interesting to have data on individual groups

3. For geography and sociology of Maharastra, see Grant-Duff,—History of the Mahrattas, I, Chap. 1.

4. Desha, or the part of Maharastra east of Konkan Ghaut Mautha seems to have been differently constituted in blood groups. As this manuscript is ready, our attention has been drawn to a study of the Madhyandina subdivision of Deshastha Brahmans (Karve, I.—Anthropometric Investigations of the Mādhyadina Brahmins of the Marāthā country.—Bull. Decc. Coll. Res. Inst. III., 1941, p. 34). The figures are as follows :—

Total	O	A	B	AB	*p*	*q*	*r*
282	124	73	70	15			
%	43·97	25.89	24.82	5·32	·171	·164	·663

The samples were taken from 9 centres including Poona and differ in their sizes, in some cases being too small. We find the sample of Nagpur (36) having O=61.11% ; A=27·78% ; B=11.11% differing from Nasik (72), O=43·05% ; A=22.22% ; B=31·94% ; AB=2·79%.

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from Assam, perhaps more so, than from Rajputana, for determining how far the Bengali type of formula extends geographically and exactly where B begins to decrease in strength.

If the Indogangetic plains represent a continuum of high B and preponderance of B over A, we have no information as to its southern limits east of Rajputana and west of the 24 Parganas, Bengal, our knowledge of Orissa being very limited. If the Gonds, Oraons and Bhils are found to be greatly mixed populations and not progressive "Spezializations-stufen", the neighbouring caste groups may show similar characteristics as the N. Indian populations. The high value of B of the Banjaras and the "Adi Hindu" (depressed !) castes of Hyderbad (42-44%) suggests that this may turn out on investigation to be a high concentration area of B, with the Todas as an outlier, and standing distinct from Cochin with an entirely different type of formula, and from Madras with lower B.

The blood groups of the neighbouring mongoloid peoples, so far known are distributed as followes :—

Northern Mongoloids.

Unfortunately, no serological investigation has taken place of the Koch, the most important of the northern mongoloids who have featured in Bengali history for several centuries. Below we give the blood groups of mongoloids further afield, some of whom at least may be believed to be comparatively free from profound mixture with Hindus of the Indian plains.

Table III

Blood Group Distribution of Northern Mongolids

No.	Population	Locality	No.	O%	A%	B%	AB%	p	q	r	Investigator
1	Nepalese	Kalimpong	78	33·30	34·60	22·10	9·00	·249	·176	·577	Macfarlane
2	Lepchas	,,	33	30·30	36·40	27·30	6·06	·241	·183	·550	Macfarlane
3	Bhotias (mixed with Lepchas etc.)	Nepal, Bhutan, Sikim & Darjeeling,	85	36·47	27·07	21·17	15·29	·241	·208	·604	Macfarlane
4	Bhotias (born in Central Tibet)	Tibet	80	38·75	36·25	20·00	5·00	·234	·134	·622	Macfarlane
5	Tibetan 119 ♂ & 68 ♀	Gyantse, (Tibet)	187	14·90	47·10	13·90	24·10	·463	·213	·386	Tennants

It has been suggested that the Tibetans of Gyantse derive their B from their intercourse with the Chinese and the high AB which is

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comparable only to those of a few east-european groups is taken to indicate genetic inequilibrium in the population. In any case, B is very low among them compared to A in percentage and from what little we know of them, the Bengalis differ from them strikingly in blood-groups constitution. The Bhotias of Central Tibet also differ from the Bengalis in that their B is low, though higher than that of the Gyantse Tibetans, and also in that their A predominates over B. The mixed Bhotias of the Indo-mongolian fringe have the lowest percentage of A among groups 1-5 ; none the less it is higher than their B, which does not differ appreciably from that of the Tibetan Bhotias (No. 4). In view of their alliances with Lepchas and others, their high AB is particularly interesting. Among the Lepchas themselves, A and B are both high, though A preponderates over B. The Nepalese of Kalimpong are also a mixed sample, comprising several intermarrying castes and may or may not be truly representative of the population of Nepal. In common with the other northern mongoloid populations, they have the same characteristic, viz., that their A preponderates over B. So far as the small data at our disposal allow us to judge, B increases in strength as we move south from Tibet, until in Bengal the relative strength of the two groups is reversed.

Indeed if we leave out of account the percentages of O, which are considerably variable in Bengal, the northern mongoloids and the Bengalis are found to behave exactly in the opposite manner as regards their relative strength of B to A. This constitutes a fundamental difference, and it does not appear likely that the Bengalis derive their high B from the northern mongoloids, so far their blood-groups constitution is known.

The North-eastern Mongoloids.

If the northern mongoloids have been in a position, by their physical presence in northern Bengal for a thousand years, directly to affect the serological constitution and the morphology of the Bengalis, the north-eastern mongoloids could only have done so indirectly. The latter are grouped round Assam, except on its western part, where the Brahmaputra flows into Bengal. This is the route followed by the Assamese invaders into Bengal and the Bengalis expanding into Assam. To the north of Assam, the ancient Prāgjyotisha, are the Bhutanese of Bhutan and the Dafla, to the east the Nagas of the Naga Hills, to the south of the Brahmaputra valley the Garos, the Khasis etc., and to the south-east, the Lushai of the Lushai Hills. The civilised Assamese population are scarcely known to physical anthropology, but appear to show a North Indian type of blood group distribution, (II, 19). The aboriginals show morphologically besides the unmis-

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takable mongoloid features, among others, traces of the brachycephalic leptorrhine and dolichocephalic leptorrhine types prevalent in Bengal. The blood groups of the north-eastern mongoloids, so far investigated are shown in table IIIA.

Table IIIA

Blood Groups of the North-Eastern Mongoloids

No. Population	No.	O%	A%	B%	AB%	p	q	r	Investigator
1 Burmese of Upper Burma valleys	100	60·00		40·00					V. Eickstedt (Incomplete)
2 Thado Kuki	83	19·30	30·00	32·50	18·10	·280	·298	·439	Br. Assen.
3 Ao Naga	57	47·40	22·80	22·80	7·00	·162	·162	·688	Br. Assen.
4 Lushai Naga	141	32·63	44·68	16·31	6·38	·302	·122	·571	Mitra
5 Konyak Naga	127	45·70	40·20	10·20	3·90	·252	·073	·676	Br. Assen.
6 Angami Naga	96	35·40	34·40	25·00	5·20	·223	·165	·595	Br. Assen.
7 Angami Naga	165	46·06	38·78	11·52	3·64	·241	·079	·679	Mitra
8 Khasi	200	33·00	35·00	18·50	13·50	·282	·175	·574	

In the above table, special interest attaches to the upper Burmese data of v. Eickstedt, with high B which is equalled only by some of the Bengali groups (I. 5, 8, 10). Until the full results of the investigation are published it is diffcult however to assess the value of the relative proportions of the groups as the data appear inconclusive, there being no information that the blood samples do not come from a closely related group of families. Five of the remaining groups show a preponderance of A over B, varying from 1.35:1 to 3.45:1 relatively to B. O is also considerably variable. The Thado Kuki show very low O, the highest B among the northern and north-eastern Mongoloids and a slight preponderance of B over A. Their AB is significantly high. High, if not quite as high, is the AB of the Khasi, who like the Kuki have absorbed one or more non-mongoloid primitive racial elements. Among all the Nagas on the other hand AB is low. Two of the Naga groups (Nos. 3 and 6) show high B. Of these, the Ao have high O, but their A is equal to B. The sample however is too small in the particular case to be considered significant as regards percentages. The other group, the Angami appears to us doubtful as regards sampling. The other three Nagas show values of B lower than those of the Khasis. It has been suggested that the Nagas are much less influenced by one at least of the primitive non-mongoloid strains viz., the Pre-dravidians than are the Kukis, or the Khasis. It would be nevertheless dangerous to assume without further evidence

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that miscegenation with this particular race has led to the increase of B among the Kukis and the Khasis ; that might only serve to explain their high AB. Nor can it be presumed that the genetical condition indicated by the comparatively high AB is favourable for the selection of B. The Todas (II.12) with 13.% AB have 38.% B and the Pre-dravidians of Madras (IIA.11) with 12.% AB have only 9%.B. All the same, it seems to us that if among the north-eastern mongoloids miscegenation has taken place in some groups with certain races to the exclusion of others, and in other groups *vice-versa,* then the mongolian substratum with its A preponderant over B as among the northern mongoloids being common to all of them, their serological investigation will add much welcome knowledge to the raciological conditions which may favour the increase of B in India. But until further data are obtained from the neighbouring mongoloid tribes of Bengal and Assam no definite conclusions can be reached.

Résumé.

The following is a brief *résumé* of the preceding discussion.

1. The data on blood-groups constitution so far collected is not quite satisfactory from several points of view viz., that the samples are often too small and that adequate attention has not been paid to eliminate family data and regional groupings have not been followed.

2. Critical examination of the data thus brought together indicated I) that while the 24 Parganas' population showed some stratificational difference in respect of *r*, the evidence for a general stratification was not convincing ; II) that there is no data which would justify the assumption that the blood-groups are distributed in the same strength throughout Bengal as in the 24 Parganas ; or that the same stratification is present in the other districts ; III) that Bengal or at least S.W. Bengal would appear to form part of a zone of high B concentration which *seems* to embrace the Gangetic plains of N. India. This entire area must be thoroughly investigated before we could be asked to conclude that B originated in N.E. India or in Bengal. The question whether B originated in the ancestors of a certain (depressed) section of the population of north-eastern India, or of the Indian subcontinent is obscured by the artificial groupings employed by some of the field workers. An assumption to the above effect would not be justified in view of the scanty material at our disposal and also owing to the fact IV) that the "Nishada" aboriginals who would seem to have contributed not a negligible element to this "depressed" stratum, show considerable divergence among themselves in respect of blood groups. It remains to be seen how far this is due to miscegenation with populations having

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high percentages of B, and to what extent racial differences account for it.

As regards the northern mongoloids, the small data indicate that B is rather low in Tibet and increases as one moves down south to Bengal. The difference between the Bengalis and the northern mongoloids therefore appears to be fundamental. The north-eastern tribes are not very uniform in their blood groupings, their B varies from 10.2 to 32.5% and the A percentages are considerable in the majority of cases. The Thado Kuki and the Ao Naga occupy special positions. On the whole the north-eastern mongoloids are differentiated from the Bengalis. It is to be regretted that we have no data from the contact areas of Manipur, Hill Tipperah, Chittagong and Arakan.

Conclusion.

Speaking as a whole, and as far as the scanty material so far collected allow us to judge, the Bengalis are distinct from the mongoloids of the northern and north-eastern borderlands. Serologically they appear to be akin to the population of the Gangetic plains of N. India, distinguished by high percentages of B. which preponderate over A. Further, in the present state of our knowledge, it would be idle to speculate as to the origin of B in a particular part of this area or in a particular stratum of the population.

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HINDU IDEAL OF LIFE

(according to the Gṛhyasūtras)

By Batakrishna Ghosh

Like every creative age in history the Maurya period was marked by the rise of challenging heresies and vigorous reaction against them. The Gṛhya- and the Śrauta-sūtras which began to be composed in this age represent one of the most potent forces of this reaction. They offer us a pathetic picture of Brahmanism on the defensive. In the Sūtras Brahmanism fought and lost its last battle before it changed into Catholic Hinduism which became the truly national culture of India in the centuries immediately preceding the Christian era after absorbing and assimilating the values created by Vaiṣṇavism, Jainism, Buddhism and other sectarian religions of India.

During the long centuries which saw the rise of the extensive Brāhmaṇa literature the priestly classes had been stagnating. They no longer marched with the Aryan soldiers to the battle-fields invoking the aid of the gods as in the age of the Ṛgveda. With the advent of calmer days in the later Vedic age wars had become rarer, and the help of the gods and the service of the priests were perhaps no longer regarded as indispensable by the naïve Aryans. In this crisis, prompted by the *instinct* for self-preservation, and therefore not fully conscious of what they were doing, the Brahmins elaborated the strange sacrificial ritual by means of which—so they persuaded themselves and the people to believe—they could coerce even the gods. Sacrifices there were already in the Ṛgvedic age and even before, but the sacrifices as we find them in the Yajurveda and the Brāhmaṇas are quite a different affair. The gods here are not appealed to as in the Ṛgveda, nor cajoled as in the Atharvaveda, but simply coerced by means of the sacrifice, every minute detail of which was invested with portentous mystery and etherial sanctity. Armed with this sacrificial ritual, which they jealously guarded as a guild-secret, the Brahmins succeeded in reconquering their slipping power for the time being, but they forthwith began to abuse it. Thus in the Taittirīya-Saṃhitā 2.5.11.9 it was calmly laid down by them that in every law-suit the judgment should be given in favour of the Brahmin! In passages like this in the later Vedic literature we hear already the voice of the Gṛhya-, Śrauta- and the Dharma-sūtras.

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Intellectual supremacy of the Brahmins was apparently a matter of course in the vigorous age of the Ṛgveda, and therefore the Brahmins of that age did not feel it necessary to openly assert their privileges. What exactly happened in the age of the Brāhmaṇas is difficult to say, for this age is represented solely by these ritual texts manufactured by the priestly guilds *(caraṇas)*: as such the Brāhmaṇas cannot but be highly tendentious in tone and intent. Yet passages like the one referred to above clearly show that already in the age of the earlier Brāhmaṇas the Brahmins were beginning to realise that their position in society had become insecure. The Brahmanical priestly guilds must have been thoroughly frightened when in the age of the Upaniṣads even within the orthodox community the ritualism of the previous age came in for obloquy and ridicule, and the Kṣatriyas seriously challenged the exclusive right of the Brahmins to supreme knowledge. But far more menacing to them was the *bhakti* movement started by Vāsudeva Kṛṣṇa who might have been the same person as Kṛṣṇa Vāsudeva[1] mentioned in the Chāndogya Upaniṣad III. 17. 6 and the rise of the powerful heterodox sects headed by the Jains and the Buddhists who wanted a complete break with the soulless ritualism of the Brāhmaṇas and develop in their own ways the liberating doctrines of the Upaniṣadic teachers.

At this juncture the Brahmanical priestly guilds hit upon the idea of formulating as tersely and precisely as possible their ideals of religion and society and thus created the vast Sūtra literature. In the Gṛhya-sūtras they formulated their ideals of domestic life, in the Dharma-sūtras those of social life, and in the Śrauta-sūtras the sacrificial cult. Similar sūtra-works were written also on grammar (Pāṇini), metrics (Piṅgala), politics (Kauṭilya) and erotics (Vātsyāyana) at different dates. The language of the philosophical sūtras clearly suggests that they were formulated in the post-Christian era, and yet it is undeniable that both Sāṅkhya and Vedānta are of pre-Buddhist origin : this shows the utter futility of trying to determine the exact date of composition of the Sūtras, for they represent not individual authors but long traditions. The sūtra-work *par excellence*, Pāṇini's grammar, coming between Yāska and Patañjali, should have been written sometime about 400 B.C. And Pāṇini very probably had in view the language of the Gṛhya-sūtras.[2] The Gṛhya- and Śrauta-sūtras—at least the oldest of them—should therefore have been formulated during the Maurya period.

We have attempted above what may be called a vertical section to place the Sūtras in the chronological scheme of the Ancient Indian

1. See Raychaudhury, *The Early History of the Vaiṣṇava Sect*, pp. 34-5.
2. Liebich, *Panini*, p. 36.

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literature. But to determine their exact position it is equally necessary to attempt a horizontal section also, i.e. to examine briefly the character and contents of the other literary products of the same age and *genre,* for like everything else the Gṛhya- and the Śrauta-sūtras too can be known to be what they actually are only by contrast with what they are not. The Gṛhya-sūtras are meant for the guidance of pious and superstitious villagers *(snātakas)* striving more for religious merit than material advantage, Vātsyāyana wrote for the man about town *(nāgaraka)* and taught him to stop at nothing to satisfy his carnal desires, Kauṭilya posed as the preceptor of the prince and in the language of callous cynicism gave him instruction in the arts of murder and rapine and worse. Now, inspite of the obvious fact that these authors addressed themselves to different *milieux,* can we really imagine a state ruled by Kauṭilya's prince with towns swarming with Vātsyāyana's Nāgarakas and villages teeming with the Snātakas of the Gṛhya-sūtras? To complete the picture suggested by the Sūtra-works alone we have to throw in moreover a sprinkling of Pāṇini's Śiṣṭas and orthodox Śrotriyas of the Śrauta-sūtras! It is quite clear that all these various elements must have been present in some form and to some extent in the Maurya society, for otherwise there would have been no basis at all for the works concerned. But it is also certain that the sūtras are not objective records of observed *facts.* Rather they are records of subjective *ideals* of Brahmanical theorists. If Machiavelli, the European Kauṭilya, could have been a fanatical republican, and Vātsyāyana, the author of the Kāmasūtra, could have been an ascetic, we need not insist that the Gṛhyasūtras—or any Ancient Indian sociological work for that matter—should have been compiled by men akin in outlook to modern students of social anthropology.

The Śrauta-sūtras however must be judged in a different light. The elaborate sacrifices described and prescribed in them were never meant for the people in general. Only people out of the ordinary, such as the king and the Śrotriya, were expected to perform the Śrauta-sacrifices but even for them these sacrifices were not compulsory as were supposedly the petty ceremonies of the Gṛhya-ritual. Within the small circle of *élites* contemplated in the Śrauta-sūtras the Śrauta sacrifices may well be imagined to have been actually performed in essentially the same forms in which they have been described, though here too much was pure fantasy. We have a continuous literature on the Śrauta sacrifices from the Ṛgveda to the Śrauta-sūtras, and the Brāhmaṇas are almost exclusively devoted to the Śrauta-ritual. These are facts which undoubtedly suggest that the Śrauta-texts are based on a living tradition of long antiquity. But a Gṛhya-literature properly speaking begins only with the Gṛhya-sūtras. Many ceremonies of Gṛhya-ritual

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have been traced back to the hoary antiquity of Indo-European era[3]; Mantras of Gṛhya-ceremonies (e.g. marriage and burial) are found indeed already in the Ṛgveda; in the Brāhmaṇas too references to Gṛhya-ritual are not altogether wanting; and yet no Gṛhya-Brāhmaṇa ever grew up to act as a bridge between the Ṛgvedic age and the age of the Gṛhya-sūtras.[4] This too would suggest that compared with the Śrauta-sūtras the Gṛhya-sūtras are largely artificial is character, and that their chief purpose was to formally accept within the fold of Brahmanism, at a moment of cultural crisis perhaps, the popular customs and usages which had not been fully recognised before by the orthodox community. Each of the Gṛhya rules might have been observed by some people somewhere. What we have to guard against is the belief that they were scrupulously observed by all people everywhere. The very fact that the Gṛhya-sūtras ignore the heterodox sects such as the Jains and the Buddhists proves that such an idea would be erroneous.[5]

Even of the life of the orthodox community the Gṛhya-sūtras deal with one aspect only. It is highly significant that the law-court has been mentioned in them only in connection with Vaśīkaraṇa (Pār. 3. 13). It is clear that the life of the individual and the community was treated in sections by the Sūtra writers, but in writing they idealised every section, and in dealing with each ignored almost completely the other aspects dealt with in other Sūtras. The Sūtras are complementary to each other, and if in their present form they are incompatible in many respects it is because each group was treated as a separate and independent discipline in the characteristic manner by the Brahmin theorists. Only under these reservations can be accepted the following words of Oldenberg on the relation between Gṛhya- and Dharma-sūtras :—"The Gṛhya-sūtras begin to treat of the events of the daily life of the household, but they do not yet undertake to exhaust the great mass of this subject-matter; on the contrary they confine themselves principally to the ritual or sacrificial side of household life, as is natural owing to their connection with the older ritualistic literature. Then the Dharma-sūtras take an important step further; their purpose is to describe the whole of the rights and customs which prevail in private, civic, and public life. They naturally among other things touch upon the ceremonies treated in the Gṛhya-sūtras, but they generally merely mention them and discuss the questions of law and custom which are con-

3. Hillebrandt, *Ritualliteratur*, pp. 2 ff.

4. Cf. Oldenberg, *SBE.* Vol. XXX, p. xvii.

5. I cannot subscribe to the view that the prescriptions laid down in the Gṛhya-sūtras ever "assumed the character of universality" (Oldenberg, *Op. Cit.*, p. xxii).

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nected with them, without undertaking to go into the technical ordinances as to the way in which these ceremonies are to be performed" (SBE., Vol. XXX, p. xxxiv).

The life depicted in the Gṛhya-sūtras is magic-ridden. From conception to till after death the whole period is punctuated by magical ceremonies. The act of procreation *(garbhādhāna)* takes place on the fourth day after marriage to the accompaniment of appropriate formulas the express purpose of which is to bring about the birth of a male child (Śāṅkh. 1, 18-19 ; Pār. 1, 11-13 ; Hir. 7, 25 ; Gobh. 2, 5 etc.). To make the birth of a male doubly sure, the Puṁsavana ceremony is performed under the Nakṣatra Tiṣya (Āśv. 1, 13, 2), Puṣya (Śāṅkh. 1, 20, 1) or Śravaṇa *(loc. cit.)* ; the time for it is variously given in the Gṛhya-sūtras : the third month of pregnancy (Gobh. 2, 6, 1), the second or third month(Pār. 1, 14), or the fourth month (Vaikh. 3, 11), or when the pregnancy becomes visible (Āp. 14, 9). In the morning after taking a bath the wife in a new garment sits on Darbha-grass with face towards the east, and the husband touches her bared navel with his right hand and utters the mantra : "The two men, Mitra and Varuṇa" (Gobh. 2, 6, 3 ; Kh. 2, 2, 19). The details of the ceremony are however much different in Āśv. 1, 13, 2 and Hir. 2, 1, 2.

After Garbhādhāna and Puṁsavana[6] comes the ceremony of Sīmantonnayana or "the parting of hair" which is to be performed on the occasion of the first pregnancy (Śāṅkh. 1, 22, 1 ; Āśv. 1, 14, 1 ; Pār. 1, 15, 3 ; Gobh. 2, 7, 1)[7] in the light half (Āśv. 1, 14, 2) of the fourth (Āśv. 1, 14, 1), sixth (Gobh. 2, 7, 1), seventh (Śāṅkh. 1, 22, 1) or eighth (Pār. 1, 15, 3) month under a male Nakṣatra (Pār. 1, 15, 2) with implements of the male gender ((Śāṅkh. 1, 22, 6). After a bath the wife takes her seat on a *bhadrapīṭha* (Pār. 1, 15, 4) while her husband "parts her hair, upwards, beginning from the middle, with a porcupine's quill that has there white spots, or with a Darbha needle together with unripe Udumbara fruits, with the words "*bhūr bhuvaḥ svaḥ*" " (Śāṅkh. 1, 22, 8) and asks two lute-players (Āp. 14, 4) to sing the praise of king Soma (Āśv. 1, 14, 6) "or if anybody else is still more valiant" (Śāṅkh. 1, 22, 12) ; even the stanza to be sung is given (Pār. 1, 15, 8). Also the expectant mother is to say sing merrily on this occasion (Śāṅkh. 1, 22, 16). It was evidently a popular custom in the process of becoming sacrosanct, and it is significant that Āśv. 1, 14, 8 expressly lays

6. The minor ceremony of Garbharakṣaṇa has been prescribed before Sīmantonnayana in Śāṅkh. 1, 21.

7. According to Āp. 14, 1 and Hir. 2, 1, 1 Sīmantonnayana should precede Puṁsavana.

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down in connection with Sīmantonnayana that whatever aged Brahmin women with husbands and children alive may say should be done.

The ceremony on the occasion of the actual birth (Soṣyantīhoma) is thus described in Āp. 14, 14 : "With a shallow cup that has not been used before he draws water in the direction of the river's current ; at his wife's feet he lays down a Tūryantī plant ; he should then touch his wife, who is soon to be delivered, on the head, with the next Yajus (2, 11, 14), and should sprinkle her with the water of the next (three) verses (2, 11, 15-17)". A special fire (Sūtikāgni) has to be made at the door of the Sūtikāgṛha (Pār. 1, 16, 23) in which all the ceremonies connected with the Sūtikāgṛha are to be performed (Vaikh. 3, 18); but according to another view (Hir. 2, 3, 5-7) this fire is used only for warming dishes etc. and fumigating the child. The purpose of this fumigation, was evidently to keep off evil spirits, and lists are actually given of the demons against whom curses are to be uttered on this occasion (Pār. 1, 16, 23 ; Hir. 2, 3, 7). Until the tenth day when the mother gets up from childbed the fumigation of the child accompanied by those unsavoury curses against evil spirits is to be repeated every day morning and evening (Pār. *loc. cit.*). People who are accustomed to enter the room where the mother is lying are asked by the father to strew silently mustard seeds with rice-chaff on the Sūtikāgni (Āp. 15, 6-7). The details of this ceremony clearly show that both the mother and the child were regarded as threatened by demons for the first few days after birth. On the tenth or the twelfth day after the birth of the child the mother rises from child-bed and takes a purificatory bath (Āp. 15, 8 ; Hir. 2, 4, 6).

Immediately after the birth there follow a number of ceremonies in quick succession. At first Āyuṣya[8] for longevity, then Medhājanana to produce intelligence, then Stanapratidhāna "giving the breast," and then Nāmakaraṇa "the giving of name." In the case of girls no mantras are to be used in these ceremonies (Āśv. 1, 15, 10). Āyuṣya and Medhājanana are to take place even before the navel-string is cut off (Pār. 1, 16, 3).—At the Āyuṣya ceremony the father breathes three times on the new-born child and then draws in his breath with the mantra, "draw in your breath with the Ṛc, breathe within with the Yajus, breathe forth with the Sāman" (Śāṅkh. 1. 24. 2). Pār. 1. 16. 6 ff. gives various other details and particularly mentions a custom according to which the father should touch the child with the mantra[9] "Be a stone, be an axe, be imperishable gold. Thou indeed art the Self called son ; thus live a hundred autumns" (Pār. 1. 6. 18). This

8. Pār. 1. 16. 5 prescribes Āyuṣya *after* Medhājanana.

9. Āśv. 1. 15. 3 gives the Mantra in a variant form.

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queer custom appears in a still more bizarre form in Hir.2. 3. 2 : when the child is born, he lays an axe on a stone, and a piece of gold on that axe ; after he has turned these things upside down (so that the stone lies uppermost), he holds the boy over them with (the Mantra) "Be a stone etc."—The ceremony of producing intelligence (Medhājanana) is interesting. The father approaching his mouth to the child's ears murmurs : "Intelligence may give to thee god Savitṛ, intelligence may goddess Sarasvatī, intelligence may give to thee the two divine Aśvins, wreathed with lotus" (Āśv. 1. 15. 2). According to Śāṅkh. 1. 24. 9 however "the production of intelligence (is performed) by thrice saying in his right ear, 'Speech !' "[10] Then follows a ceremonial feeding of the child with butter from a gold vessel (Gobh. 2. 7. 20, Khād. 2. 2. 34, Pār. 1. 16. 4). After the ceremony of Medhājanana the father says, "Cut off the navel-string and give the breast (to the child)" (Gobh. 2. 7. 22). There are detailed rules also as to the mode of giving the breast to the child (Pār. 1. 16. 19-20). After that a pot of water is installed near the head of the mother with the words "O waters, you watch with the gods. As you watch with the gods, thus watch over this mother who is confined, and her child" (Pār. 1. 16. 22).

The next important event in the life of the child is the Nāmakaraṇa. A secret *(guhya)* name known only to the parents is given immediately after the ceremonies described above (Śāṅkh. 1. 24. 5). This is perhaps the Nakṣatra name (Āp. 15. 2). Instead of this Guhya or Nakṣatra name, Āśv. 1. 15. 8 speaks of an Abhivādanīya name which the boy's father and mother should keep to themselves till his initiation. But the *vyāvahārika* name, pleasing to the Brahmins (Śāṅkh. 1. 24. 6), by which the child is to be known in society, is given on the tenth (Pār. 1. 17. 1) or the twelfth day (Hir. 2. 4. 6, 10)[11]. The rules about this name are highly interesting. The number of syllables should be even in boys' names and uneven in girls' (Āśv. 1. 15. 7). A name of two (Āśv. 1. 15. 6) syllables should be givin if firm position is desired for the son ; a name of four (Āśv. 1. 15. 6) syllables if holy lustre *(brahmavarcasa)* is desired ; or a name of six (Śāṅkh. 1. 24. 4) syllables. The name should begin with a sonant and contain a semivowel in it, and a long vowel or the Visarga at the end, and should be formed with a Kṛt suffix (Gobh. 2. 8. 14). The name of a Brāhmaṇa should end in *-śarman*, that of a Kṣatriya in *-varman*, and that of a Vaiśya in *-gupta* (Pār. 1. 17. 4). It is further prescribed that the name should contain the particle *su*, and that its first part should be a noun and the second part a verb (Āp. 15. 9-10). Girls' names should end

10. But in the next Sūtras he prescribes other Mantras and ceremonies.
11. Or after a hundred nights or one year have elapsed (Gobh. 2. 8. 8).

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in *-ā* or *-dā* and be formed with Taddhita suffix (Gobh. 2. 8. 16 ; Pār. 1. 17. 3).

After the naming ceremony comes the birth-day festival performed every month (for the period of one year only ?) on the Tithi of the child's birth (Śāṅkh. 1. 25. 10) or on the Parvan days (Gobh. 2. 8. 19) at which sacrifices are offered to Agni and Indra, Heaven and Earth, the All-gods, and the Tithi and the Nakṣatra of the birth-day (Gobh.). The third Tithi of the third bright fortnight after birth is the time for the curious ceremony of showing the moon : after sunset the father, holding up his joined hands in the auspicious directions, worships the moon, and the mother hands him the child in such a manner that his face remains turned to the north; the father murmurs a Mantra ending with the words "that this son may not come to harm (and thus be torn) from his mother" and hands him back (Gobh.2. 8. 1-7 ; Khād. 2. 3. 1-5). The less elaborate ceremony of showing the sun takes place in the fourth month when the child goes out for the first time (Pār. 1. 17. 5-6). The ceremony of first feeding (with solid food) comes in the sixth month. Various kinds of food are mentioned in this connection, e.g. : goat's flesh (Śāṅkh. 1. 27. 2) for abundance of nourishment, flesh of partridge (Āśv. 1. 16. 3) for holy lustre, fish (Pār. 1. 19. 9) for swiftness, boiled rice with ghee (Āśv. 1. 16. 4) for splendour, etc.[12]

The next ceremony in the life of the growing child is that of the tonsure of the head *(cūḍākaraṇa)*, the time for which–apparently in the case of Brahmins—is variously given from the first year (Pār. 2. 1. 1 ff.) to the third year (Āśv. 1. 17. 1) after birth. It is specifically laid down that the appropriate time for this ceremony is the fifth year for a Kṣatriya and the seventh year for a Vaiśya (Śāṅkh. 1. 28. 3-4). The ceremony should take place in the light half of the month under an auspicious constellation (Hir. 2. 6. 2) like Punarvasū (Āp. 16. 3). Of the tedious details given in the Gṛhya-sūtras let us mention that the hair is moistened with hot water mixed with cold (Āśv. 1. 17. 6) and loosened with a porcupine's quill (Śāṅkh. 1. 28. 10), and that the barber, armed with a razor of Udumbara wood (Gobh. 2. 9. 13) and another of metal (Ibid. 17), proceeds to his job with the Mantra : "Axe ! do not harm him" (Ibid. 15). Cūḍākaraṇa is prescribed also for girls, but without Mantra (Śāṅkh. 1. 28. 22).—The ceremony of Godānakarman[12a] or shaving the beard, prescribed for the sixteenth year by most of the Sūtras, is much the same as Cūḍākaraṇa, so that the same Mantras have to be

12. The rite is performed without Mantra in the case of girls according to Āśv. 1. 16. 9.

12a. For an extremely artificial interpretation of the term see Mallinātha on Raghuvaṁśa III. 33.

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used in it also, with the substitution of the word "beard" for "hair" (Āśv. 1. 18. 3). A disproportionately large Dakṣiṇā—after which the whole ceremony has apparently been named—is prescribed for this unimportant Saṁskāra : a cow (Pār. 2. 1. 24), or a cow and an ox (Āśv. 1. 18. 8) is (according to Gobh. 3. 1. 5) the sacrificial fee paid by a Brāhmaṇa, the corresponding Dakṣiṇā for a Kṣatriya and a Vaiśya being a pair of horses and a pair of sheep respectively (Gobh. 3. 1. 6-7).

The ceremony of Upanayana or initiation marks the second birth of the twice-born. It stands on the borderline between Dharma and Gṛhya, and therefore has been described at some length also in the Dharmaśāstras. But its ritual side as represented in the Gṛhya-sūtras is so elaborate that we can only mention here some of its most salient features.—Upanayana means "introduction to Brahmacarya."[13] From anthropological point of view it should be regarded as one of those precious relics of a primitive society divided into age-groups surviving into a wholly transformed society consisting of family-groups.[14] Even now there are primitive societies without effective family ties in which young men at a certain age leave their families and combine into close groups to practice religious cults sometimes utterly immoral.[15] The Brahmacārins of the Gṛhya-sūtras, with their vows and peculiar uniforms, living under hard discipline in groups away from hearth and home, were perhaps those primitive age-groups sublimated. Even in its ritualised form the Upanayana as we find it in the Gṛhya-sūtras is at least of Indo-Iranian antiquity, for the corresponding Avestan ceremony knows all its essential features.[16]

The prevailing view about the time for Upanayana prescribes the spring (Āp. 10. 4) of the eighth year from conception or birth (Āśv. 1. 9. 1-2) for a Brahmin (Śāṅkh. 2. 1. 1), the summer (Āp. *loc. cit.*)of the eleventh year from conception (Āp. 10. 3) or birth (Āśv. 1. 19. 3) for a Kṣatriya (Śāṅkh. 2. 1. 4), and the autumn (Āp. 10. 4) of the twelfth year from conception (Āp. 10. 3) or birth (Āśv. 1. 19. 4) for a Vaiśya (Śāṅkh. 2. 1. 5). In real practice, however, much latitude seems to have been allowed, for in another view even the sixteenth year is not too late for the Upanayana of a Brahmin, and the initiation of a Kṣatriya and a Vaiśya can in that view wait till the twenty-first and the twenty-fourth year respectively (Āśv. 1. 19. 5-7). Pāraskara's rule that the initiation should take place when considered auspicious by all (Pār. 2. 2. 4) seems to indicate that the matter was decided after all by custom and conve-

13. See Oldenberg, *SBE.* Vol. XXIX, p. 58, f.-n. 1.
14. See particularly, Stig Wikander, *Der arische Männerbund.*
15. See Lowie, *Primitive Society,* (second impression), p. 243.
16. Look under *Initiation* in the Encycl. of Rel. and Ethics.

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nience. But still there seem to have been many among the twice-born who did not submit to the ceremony of initiation. Pār. 2. 5. 39-40 grimly lays down that an uninitiated Brahmin, Kṣatriya or Vaiśya, after his sixteenth, twenty-first and twenty-fourth year respectively, should forfeit his right of learning the Sāvitrī, and "no one should initiate such men, nor teach them, nor perform sacrifices for them, nor have intercourse with them". But such a person was not irretrievably lost—not even if his ancestors had been *patitasāvitrīkas* for three generations—, for "intercourse with them is permitted" after they have performed the sacrifice of Vrātyastoma (Pār. 2. 5. 42-43).

The ceremony of initiation should take place "in the time of the increasing moon, under an auspicious constellation, preferably (under a constellation) the name of which is masculine" (Hir. 1. 1. 5). Early in the morning of the day of initiation the boy is fed and shaved and bathed and clothed in an unused *(ahata)* garment (Gobh. 2. 10. 7) and decked with ornaments (Hir. 1. 1. 7) ; Brahmins in even number are entertained with food so that they utter benediction (Hir. 1.1.6); the fire for the ceremony is kindled by attrition or fetched from somewhere (Hir. 1. 1. 10), and is maintained for the three days of the ceremony (Āp. 11. 20) ; to the north of this fire are laid out the following objects necessary for the ceremony (Hir. 1. 1. 16-18) : a stone, an unused garment, a skin, a threefold-twisted girdle (of Muñja grass in the case of a Brahmin, a bow-string for a Kṣatriya, a woollen thread for a Vaiśya), a staff of wood (varying according to caste), and twenty-one pieces of wood or as many as there are oblations to be made. Then after some preliminary offerings and ceremonies begins the Upanayana proper with a dialogue between the teacher and the neophyte. The teacher causes him to say, "I have come to be a student. Initiate me ! I will be a student, impelled by the god Savitṛ" (Hir. 1. 5. 2 ff.). After formally asking his name the teacher accepts him with the formula, "by the impulse of the god Savitṛ, with the arms of the two Aśvins, with Pūṣan's hands I initiate thee" (Hir. 1. 5. 10), and enjoins upon him absolute obedience and allegiance with the Mantra, "Thy heart shall dwell in my heart, my mind thou shalt follow with thy mind, in my word thou shalt rejoice with all thy heart, may Bṛhaspati join thee to me ! To me alone thou shalt adhere, in me thy thoughts shall dwell, upon me thy veneration shall be bent, when I speak thou shalt be silent" (Hir. 1. 5. 11). The Upanayana is followed by the teaching of the Sāvitrī-mantra—the holiest of the holy—which it is the privilege and obligation of every twice-born to recite every day morning and evening (Āśv. 2. 7. 4-6 ; Śāṅkh. 2. 9. 2-3). According to some authorities the teaching of the Sāvitrī follows immediately upon initiation (e.g. Hir. 1. 6. 10-11), but according to others it may come even one year after (Śāṅkh. 2. 5.

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1-3) ; a Brahmin however was taught the Sāvitrī immediately (Pār. 2. 3. 7). The Mantra was not the same for all : a Gāyatrī-verse (RV. III. 62. 10) was prescribed for a Brahmin, a Triṣṭubh (RV. I. 35. 2) for a Kṣatriya, and a Jagatī (RV. IV. 40. 5 or I. 35. 9) for a Vaiśya (Śāṅkh. 2. 5. 4-6). At the end the student receives a staff between which and himself he should leave no passage (Śāṅkh. 2. 13. 2), and therewith is concluded, according to most authorities, the elaborate ritual of initiation. Furnished with all the insignia of his new state, viz. skin-dress *(ajina)* and girdle *(mekhalā)* and staff *(daṇḍa)*—over and above the sacrificial cord *(upavīta)* which he is assumed to have been invested with even before his initiation proper (Śāṅkh. 2. 2. 3)—the student is now launched on the hard life of Brahmacarya of which the standing daily duties consist in the putting on of fuel, the going for alms, sleeping on the ground and obedience to the teacher (Śāṅkh. 2. 6. 8 ; cf. also Gobh. 3. 1. 27 and Pār. 2. 5. 11). It should be noted that study *(adhyayana)* was not regarded as one of the standing duties *(nityadharma)* of the student in the Gṛhya-sūtras. Study of course was one of the main items in Brahmacārin's daily routine, but its purpose was not education. The only thing that the student could learn from the Adhyayana described in the Gṛhya-sūtras is priestcraft. It is significant that the Sūtras are silent as to what the Kṣatriyas or the Vaiśyas should learn during the period of Brahmacarya. It is quite clear at all events from the texts that the Brahmin students flocked to the teachers to learn the art of sacrifice and nothing else. It was magic pure and simple that the teachers taught, and they took good care to create an atmosphere of awe and mystery. The sūtras are full of meticulous details about the mode of study (see particularly Śāṅkh. 2. 7). According to the expressed desire of the student the teacher recites a particular Mantra which the student then repeats after him. The teacher has to explain also the Ṛṣi, deity and metre of every Mantra ; if he cannot then he recites the Sāvitrī (Śāṅkh. 2. 7. 19)! The mode of teaching varies according to Śākhā (Pār. 2. 10. 19-21). The whole course of study consists of *vidhi*, *vidheya* and *tarka* (about ritual) according to Pār. 2. 6. 5. But there were some who did not like to see Adhyayana confined to ritual training alone and advocated the study of the six Aṅgas also (Pār. 2. 6. 6-7).

In prescribing the length of the period for which the student should remain with the teacher the Sūtra-authors again betray their lack of the sense of reality. Since twelve years was considered necessary to master one Veda, a student desiring to learn all the four Vedas has to remain a Brahmacārin for forty-eight years—says Pār. 2. 5. 13 ! After concluding the course of study the student takes a ceremonial bath and is henceforth called *Snātaka* and revered by all as a "great

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being" (Āśv. 3. 9. 4-6). The Snātaka should assume a dignified demeanour (Gobh. 3. 5. 1) and his language must be chaste : he should call a pregnant woman *vijanyā* and a skull *bhagāla* etc. (Pār. 2. 7. 10-13). His means of livelihood, however, are gleaning ears of corn, receiving alms, performing sacrifices for others, etc., but he may follow the occupation of a Vaiśya when other means fail (Śāṅkh. 4. 11. 13-15). He is the ideal citizen observing the rules of conduct prescribed by Śiṣṭas (Gobh. 3. 5). The Gṛhya-sacrifices described in the following are meant chiefly for the Snātakas.

The first duty of the Snātaka is to get married. Marriage-laws have been described in the Dharmaśāstras. The Gṛhya-sūtras on the other hand describe the marriage-ritual, and that in such elaborate detail that we can mention here only its most salient features. The traditional eight forms of marriage[17] of the Dharmaśāstras are indeed mentioned in the Gṛhya-sūtras (e.g. Āśv. 1. 6), but the four inferior forms (Gāndharva, Āsura, Paiśāca and Rākṣasa) do not fit in with the described ritual and seem to have been given an unwilling and anomalous recognition only at a later age. The same must be said also of the recognition accorded to intercaste Anuloma marriage (Pār. 1. 4. 8-11). The influence of the Dharmaśāstras on the Gṛhya-sūtras is quite evident on both these points. But inspite of this humanising influence the marriage prescribed in the Gṛhya-sūtras remains an unromantic and formal affair if we leave out of consideration the rule of Āpastamba recommending a wife who is "pleasing to the mind and the eyes" (3. 20). In common with the Dharma-śāstras the Gṛhya-sūtras declare that the bride should be of the same caste as the bride-groom, but her Gotra must be different and she must not be a Sapiṇḍa relation of his mother (Gobh. 3. 4. 4-5), and she should preferably be a Nagnikā (Gobh. 3. 4. 6). There are detailed instructions about the auspicious marks and personal qualities to be looked for in a bride (e.g. Āp. 3. 11-13), but the choice was determined as much by these *lakṣaṇas* as by divine intervention in the form of oracle (see Āśv. 1. 5. 5). The infinite details of the marriage ritual described in the Gṛhya-sūtras and the ancillary literature are of great interest for anthropology but too trivial to deserve specific mention in connection with social history.[18]

After marriage the Snātaka settles down as a house-holder by setting up the domestic (*gṛhya, āvasathya* or *aupāsana)* fire which he has to maintain all his life. It is into this fire that all the offerings of Gṛhya-ceremonies are sacrificed. The domestic fire is the symbol of

17. See Jolly, *Hindu Law and Custom*, § 16.

18. A convenient summary will be found in Hillebrandt, *Ritualliteratur*, § 37.

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independent household, so that it can be installed also at the time of the division of inheritance (Pār. 1. 2. 2). According to one theory it should be drawn from the same fire with which the marriage rites have been performed (Āp. 5. 13-14), and it is with this domestic fire that the householder is burnt after his death if he faithfully keeps it up (Pār. 3. 10. 11).[19] The life of the Snātaka from the setting up of the Gṛhya-fire to death, as described in the Gṛhyasūtras, is a string of sacrifices offered into the domestic fire, some daily, some at fixed periods, and some on special occasions.

Twice everyday, before sunrise and after sunset (Pār. 1. 9. 2; Gobh. 1. 1. 27-28), two oblations of rice and barley should be offered in the domestic fire to deities about whom there is no unanimity in the Sūtras (see Āp. 7. 19-21; Hir. 1. 23. 8-9 etc.). The householder's wife may offer the morning and evening libations on his behalf, "for his wife is, as it were, his house, and that fire is the domestic fire" (Gobh. 1. 3. 15). Also the *pañca mahāyajñas*[20] (Āśv. 3. 1. 2-4) have to be performed everyday consisting of sacrifice to the gods *(devayajña)*, Bali offerings to living beings *(bhūtayajña)*, Piṇḍa offerings to the Fathers *(pitṛyajña)*, study of Vedic texts *(brahmayajña)*, and charity to men *(nṛyajña)* which was interpreted as the feeding of a Brahmin (Pār. 2. 9. 11). Even if there is no food in the house the householder has still to sacrifice to the gods and men, be it with a piece of wood and a pot of water (Pār. 2. 9. 16). The theory of these five daily sacrifices is the corner-stone of orthodox Hindu sociology, even granting—what is obvious—that all of them could never have been duly performed by all the householders even in normal times. It is by no means an upstart invention of Sūtra-writers, for the Pañca Mahāyajñas are mentioned already in the Śatapatha Brāhmaṇa XI. 5. 6. 1 ff.

Of periodical Gṛhya ceremonies the most important are the Darśa (new moon) and Pūrṇamāsa (full moon) sacrifices performed every fortnight, the exact times for which have been discussed at some length in Gobh. 1. 5. At full moon the deities are Agni or Agni-Soma, and at new moon Agni or Indra-Agni (Gobh. 1. 8. 23-24), but other deities too may be worshipped according to particular wishes of the sacrificer (Āśv. 1. 10. 5). The sacrificer and his wife should divide the following night between sleep and conversation telling each other Itihāsas etc. (Gobh. 1. 6. 4).—A number of other periodical sacrifices are also recommended in the Gṛhya-sūtras. A very interesting one of these is the Śravaṇākarman which takes place on the full-moon day of Śrāvaṇa

19. A Śrotriya had to set up three fires.

20. The first three of these five Mahāyajñas are known as the Vaiśvadeva-sacrifice (see Śāṅkh. 2. 14. 1; Āśv. 1. 2. 1-2).

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(Pār. 2. 14. 2) : from this day the householder sleeps on a high couch and not on the ground for fear of snakes, and the whole ritual and the Mantras (see particularly Śāṅkh. 4. 15 ; Āśv. 2. 1) clearly show that it was nothing but a canonised popular custom, this time a sensible one, for even at the present day in India mortality from snake-bite is highest in the rainy season. At the end of the rainy season, on the full moon of Mārgaśīrṣa or Agrahāyaṇa, takes place the Pratyavarohaṇa ceremony,[21] i.e. redescent from the couch (Āśv. 2. 3. 1; Śāṅkh. 4. 17. 1). —The full moon of Prauṣṭhapāda is the time for the Indrayajña (Pār. 2. 15), and that of Āśvina the time for Āśvayuja, also called Pṛṣātaka (Āśv. 2. 2. 1 ff., Śāṅkh. 4. 16).

These are the chief periodical ceremonies which a pious householder is expected to perform regularly by the authors of the Gṛhya-sūtras. But there are, besides, quite a number of other Gṛhya-ceremonies which the householder has to perform on special occasions. Argha, or ceremonial reception, is one of them. The six persons regarded in tradition as entitled to Argha once a year are the teacher *(ācārya)*, the officiating priest *(ṛtvij)*, the father-in-law *(śvaśura)*, the king *(rājā)*, the friend *(priya)*, and the Snātaka (Pār. 1. 3. 1-2 ; Śāṅkh. Śr. S. 4. 21. 1).[22] The gifts conferred on the guest on such an occasion are also six in number, including a cow, and there are precise rules in the Sūtras about the mode of offering them (see Hir. 1. 12-13). The offered cow would be killed or set free as the guest desires (Pār. 1. 3. 27-28 ; Āśv. 1. 24. 31-32).

The building of a house was also an important occasion with which is associated a complicated Gṛhya-ritual older than the Sūtras, for Atharvaveda III. 12 presupposes a similar ritual. From the details in the texts (e.g. Gobh. 4. 7 ; Khād. 4. 2. 6 ff.) it is clear that only a wooden hut was contemplated by the Sūtra-writers, no brick-house or stone-building. Thus Āśv. 2. 8. 13 lays down that the rooms should be constructed in the interstices between the bamboo staffs. Humble though the house was it contained not only a provision-room *(bhakta-śaraṇa)* but also a parlour *(sabhā)* which apparently was often the scene of riotous gambling (see the significant rules in Āśv. 2. 7. 8-12). The whole ceremony, accompained by appropriate Mantras and ritual acts, comes to an end with Vāstuśamana, i.e., placating the deity of the hearth (Hir. 1. 27-29). Then the householder enters the new house with his wife and the eldest son (Śāṅkh. 3. 4. 9).

21. The Pratyavarohaṇa-ceremony has been treated as a great occasion in the Gṛhya-sūtras, and it is possible that here we have traces of an old new year's festival as suggested by Weber, *Naxatra* II, p. 332.

22. The list varies slightly in different sources.

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Cattle was evidently the chief form of wealth to the Sūtra-authors, and the rules of tending the cattle prescribed by them give the impression of a developed cow-cult. Every little act in connection with the cattle—driving them out in the morning, receiving them back in the evening, etc.—is performed to the accompaniment of appropriate Mantras (Gobh. 3. 6 ; Khād. 3. 1. 45-52), and there was actually a sacrifice called *goyajña* the express purpose of which was to secure increase of cattle (Gobh. 3. 6. 10-15). At the Śūlagava-ceremony, described at some length in the Gṛhya-sūtras (see Āśv. 4. 8 ; Pār. 3. 8), an ox was spitted, not a cow ; yet to set a bull at liberty *(vṛṣotsarga)* was at the same time regarded as a highly meritorious act (Śāṅkh. 3. 11 ; Pār. 3. 9).—Of ceremonies connected with agriculture let us mention those of setting the plough in motion (Gobh. 4. 4. 27 ff.) and of collecting the first fruit[23] (Pār. 3. 1 ; Śāṅkh. 3. 8). The sacrifice to the furrow *(sītā)* was performed appropriately on a field of rice or barley (see Pār. 2. 17. 2 ff.). It is not clear whether these sacrifices are prescribed exclusively for the Snātaka who has been compelled by circumstances to adopt the profession of a Vaiśya. More probably they are meant for the common man—the Vaiśya—who had never been a Snātaka.

This is in brief the cycle of socio-religious duties which the pious householder has to perform all his life according to the Gṛhya-sūtras. But there is also another system of sacrifices penetrating and punctuating the whole life of the householder,—the Śrāddhas or sacrifices to the Manes. As already mentioned above, the sacrifice to the Fathers is one of the *pañca mahāyajñas* performed every day.[24] The chief form of Śrāddha was apparently the monthly Pārvaṇa Śrāddha performed on the newmoon day (Āśv.4.7.1 ; Śāṅkh. 4. 1) or on any day with an uneven number in the second half of every month (Āśv. 2. 5. 10 ; Hir. 2. 10. 1.) Some Sūtras seem to differentiate between Māsika and Pārvaṇa Śrāddha (for details see Hillebrandt. § 57. 3).Āśvalāyana at any rate had two different Śrāddhas in view which he calls Māsika and Pārvaṇa respectively. This monthly Śrāddha again knows two sub-types, viz. the Ekoddiṣṭa directed to a single person performed through one year after his death (Śāṅkh. 4. 2) and the Sapiṇḍīkaraṇa by which he is received within the community of the Manes after one year has passed after his death (Śāṅkh. 4. 3).—Another class of periodically recurring Śrāddhas are the Aṣṭakās celebrated "on the eighth days of the four dark fortnights of Hemanta and Śiśira" (Āśv. 2. 4. 1), but all of them

23. This Āgrayaṇa-ceremony is described also in the Śrauta-sūtras (see Āśv. Śr. S. 2. 9 ; Kāt. Śr. S. 4. 6). The ceremony as described in the Gṛhya-sūtras was performed evidently by those other than the Āhitāgnis (see Śāṅkh. 3. 8. 1).

24. The daily sacrifice to the Fathers is not Śrāddha technically.

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may also be performed on any *one* of these days (Āśv. 2. 4. 2) in which case the sacrifice is appropriately called Ekāṣṭakā (see Hir. 2. 14. 1). There was however some difference of opinion as to the number of Aṣṭakās. Gobh. 3. 10. 4-6 quotes the opinion of Kautsa favouring four Aṣṭakās, but himself prescribes only three, viz. the Apūpāṣṭakā on the eighth day of the dark fortnight after the Āgrahāyaṇī full moon (3. 10. 9), the cow-Aṣṭakā on the eighth day after the full-moon day of Taiṣa (3. 10. 18), and the Śākāṣṭakā on the eighth day after the full moon day of Māgha (4. 4. 17-21). Some authorities demanded animal-sacrifice at each Aṣṭakā (e.g. Kautsa in Gobh. 3. 10. 5), and the Anvaṣṭakya-ceremony appended to every Aṣṭakā presupposes an animal-sacrifice (Pār. 3. 3. 10). Over and above these three or four Aṣṭakās another Aṣṭakā is mentioned which was performed *madhyāvarṣe,* i.e. "in the middle of the rainy season" or "in the middle of the year" (Śāṅkh. 3. 13. 1 ; Pār. 3. 3. 13).—Apart from these regular Śrāddhas there were others performed on special occasions ; thus the Ābhyudayika Śrāddha on a lucky event such as the birth of a son (Gobh. 4. 3. 35 ; Āśv. 4. 7. 1). At all Śrāddha ceremonies the Upavīta is slung over the right shoulder *(prācīnāvītin)* and not over the left *(yajñopavītin)* as otherwise (see Gobh. 1. 2. 2-4 ; Khād. 1. 1. 5-6).

So life rolls on in an endless cycle punctuated by birth, initiation and death, some Sūtra-writers beginning the cycle at birth and others at initiation. Death in this context means only a brief holiday from the strenuous duties of life, and therefore was not altogether unwelcome. The Gṛhya-sūtras however, do not, as a rule describe the funeral ritual, leaving it to the Śrauta-sūtras. Only Āśvalāyana has devoted the whole of the fourth Adhyāya of his Gṛhya-sūtra to funeral ceremonies, but he too has in view chiefly the Śrotriya and not the Snātaka who is usually *the* subject of treatment in the Gṛhya-sūtras.

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CELTIC AND SANSKRIT

By BATAKRISHNA GHOSH

There was a time when the whole of western and central Europe was peopled by Celtic speaking tribes. "Vindobona," the old designation of the city of Vienna, is a Celtic word, and both *Wallachia* (=Roumania) and *Wales* are derived from the Celtic root **walx-*. But that is not the farthest point to the east reached by the Celtic within historical times. In the third century B.C. the Galatean Celts invaded Asia Minor and set in turmoil the Greek kingdoms of that region. Polybius and other Greek historians of that age have left grewsome records of the first onslaughts of the Celtic barbarians on those Greek states. But the Galateans gradually learned the arts of peace from the Greeks and settled down in the countries they tried but failed to destroy, furnishing for a nearly a century their Greek rulers with virile mercenery troops with which to fight and destroy each other. The earliest contact of the Celts with the Romans has been already mentioned in the chapter on Latin. Later, however, the Romans carried war into the Celtic countries and so completely subjugated the Celts both politically and culturally that practically nothing is known to-day of the original Celtic languages of Spain, France, Belgium, and other countries of continental Europe. In Central Europe the Celts were simply crushed out of existence by the Romans from the south and the Germans from the north, and the Celtic dialects too could nowhere stand the impact of other Indo-European languages. Their history is one of defeat and retreat and decay. Continental Celtic dialects are completely lost. Even in the comparative safety of the islands of Great Britian and Ireland they are in retreat, though not quite dead. The Celts have ceded so much ground to rival linguistic groups that it is very doubtful whether Irish, even though the official language of Eire, will ever be able to recover its position as the vehicle of a distinctive culture. Only 500,000 of the three million inhabitants of Eire speak Erse, the rest English only. Of Scotland's five million, the Gaelic-speakers are about 130,000. Of the two million inhabitants of Walse only 800,000 use Welsh as their daily tongue. But Celtic civilisation, specially that of Ireland, played an important part in the history of Western Europe in the Middle Ages. Even to-day, French wit is popularly known as Gallicism. In reality, it should mean all that distinguishes French culture from the civilisations of Italy and England. In Berkeley Ireland produced one of the greatest philosophers of Europe, and Shaw, Synge and Yeats are by no means the only modern Irish writers of genius and geniality.

The Celtic languages, living or dead, may be divided into two broad groups, viz. Island-Celtic and Continental Celtic. But Island-Celtic itself falls naturally into two groups, viz. Gaelic and Britannic.

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The chief representative of Island-Celtic is of course Irish (also called Gaelic or Goidelic), standing at the head of the Gaelic-group of Island-Celtic dialects. The original Irish word for "Irish" was *goidelg* which in modern pronunciation (though not in written form which is *gaedhilge* or *gaoidhilge*) has become *Gaelic*. The oldest Gaelic records are inscriptions in Ogham-script consisting of straight scratches above and below a dividing line. The corner of the stone, on which these inscriptions are written, usually served as the separating line between the scratches on either side. But precisely the corner of most of the stones with these inscriptions have broken off, rendering decipherment extremely difficult. The language of the Ogham-inscriptions still retains the I.-E. k^w which later changes into *k*, the final vowel has not yet fallen off in them, the final *-s* however is already disappearing, and the final *-m* is already lost. The oldest Ogham-inscriptions (fourth century A.D.) are found not in Ireland but in Wales whither Irishmen emigrated in large numbers during Roman rule over Britian. Apart from Ireland and Wales, Ogham-inscriptions are found also in Cornwall and Scotland.

Irish literary tradition begins with the eighth century A.D., the oldest source being the Turin Palimpsest with twenty-nine Irish glosses on the second Epistle of St. Peter (Pedersen, vol. I, p. 6). The most important literary source of Old Irish is however the Würzburg-manuscript of Old Irish glosses on the Latin text of St. Paul's Epistles, dating probably from the middle of the eighth century (Thurneysen, § 8).—Middle Irish is supposed to begin with the year 1100, and New Irish with 1500.—Scotch-Gaelic and Manx-Gaelic resemble Irish-Gaelic so closely that linguistically all three may be treated as one group derived from Old Irish (Pedersen, § 10). There is however no ancient literary monument in Scotch-Gaelic or Manx-Gaelic.—The Picts, too, of northern England, described by Roman writers, spoke probably a Celtic dialect of the Gaelic group. But nothing but a few proper names is known of this language, and some scholars are inclined to doubt even its Indo-European character.

The Britannic group of Island-Celtic, i.e. the Celtic dialects of England and Wales, naturally fall into three groups, viz. Welsh (called *Kymrisch* in German after the native designation *cymraeg*, and *Gallois* in French), Cornish and Breton (Armorican). Breton is spoken to-day not in England, but in Brittany in Northern France. Yet it is justly regarded as an Island-Celtic dialect, for it was transported from Cornwall and South Wales by Britons who emigrated from the fifth century onwards under pressure of Germanic invasion. The earliest records of Welsh are a few glosses and inscriptions of the eighth century. But there is a rich literature in Middle Welsh beginning about 1100 A.D. Cornish, the dialect of the peninsula of Cornwall, died out in the eighteenth century. Breton however is still spoken, though within a narrow and contracting area.

It will be clear from the above survey that we have a rich and varied and fairly old literature in the dialects of the Island-Celtic group. Of the dialects

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of Continental Celtic however, usually lumped together as "Gallic", we know practically nothing at all. Evidently, the direct contact with Latin proved fatal for them. Gallic, the language of the people about whom Julius Caesar has left us so much information in his book on Gallic wars, was dead even before the Bretons migrated to France. There are about sixty Gallic inscriptions, some of these ranging from the descent of the Gauls into Italy to the conquest of Gaul, the latest belonging to a time shortly after the Roman conquest (Hubert, *The Rise of the Celts*, p. 35).

Special affinities of the Celtic group with the Indo-European dialects of Italy have been already mentioned before (I.C., vol. VIII, p. 468). But the deserve a more detailed treatment, specially as some scholars have in recent times expressed scepticism on this score (see Keith, IHQ., vol. XVI, p. 456). Mutation of I.-E. k^w into p both in Britannic and Oscan-Umbrian but unknown in Gaelic and Latin, and the change from $p.....k^w$ to $k^w.....k^w$ (which gave words of the *quinque* type to Latin and words of the *coic* type to Irish) both in Gaelic and Latin, but unknown in Britannic and Oscan-Umbrian (Hubert, p. 59), are too striking to be waived aside as fortuitous coincidence and really suggest that Italic and Celtic dialects got mixed up in very early times, though how and where we shall never know. Moreover there are many other striking Italo-Celtic isoglosses which fully confirm the special affinity between the two groups, without however disrupting each of them in twain like these phonetic laws regarding the treatment of Indo-European labio-velars. The peculiar genitive ending *-ī* of Lat. *o*-stems (IC., vol. VIII, p. 100) has its exact parallel in Celtic; cf. Irish *maqos* (nom.) : *maqi* (gen.). In both groups the superlative is formed by adding the suffix *-samo-* (and not *-isto-* as in Sanskrit, Greek etc.) which became *-(s)im-* in Latin and *-(s)am-* or *-(s)em-* in Celtic; thus "nearest" is *proximae* in Latin, *nessimas* in Oscan, *nessam* in Old Irish, and *nesaf* in Welsh. Latin *b*-future of unknown origin (IC., vol. VIII, p. 105) is paralleled by Irish futures in *-f* and *-b*; thus *legfa, ni legub* from *legaim* "I read". The most important Italo-Celtic innovation is however the *r*-deponentia (IC., vol. VIII, p. 105), and here agreement too is quite perfect; thus Lat. *loquor loquitur loquimur*=Irish *labrur labrithir labrimmir* (Hubert, p. 60). It is important to remember in this connection that the necessity for *r*-deponentia arose in Latin and Celtic because both these groups lost the forms of the middle voice with a reflexive meaning (like Gr. *lúomai* "I wash myself", Skt. *mriyé* "I die").

As universal characteristics of all Celtic languages, Pedersen (§ 22) mentions the following sound-changes :—(1) I.-E. $\bar{e} >$ Celt. $\bar{\imath}$; (2) I.-E. $p > f$ ($> h$ etc.); (3) Occlusive $+ n >$ geminated occlusive; (4) I.-E. r, $l > ri$, li; (5) I.-E. $g^w > b$; (6) $st > ts$ (under certain circumstances). But *lenition* should have been regarded as the most striking feature of Celtic if it could be actually proved to be pan-Celtic. It is at all events the most prominent characteristic of Island-Celtic. It affects medial occlusives and also initial ones when the initial sound is of a word which is closely associated with a preceding word. This

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lenition is a very old phenomenon, as it presupposes the retention of final and middle syllables in Old Irish. Lenited *c, t,* (and *p* in loan-words) appear in Old Irish as *ch, th* (and *ph*=*f*); there are no special signs for the corresponding lenited sonants; so that *g d b* indicate both pure and lenited sonants; there is moreover a lenited *m,* i.e. a nasalised *b̃* (Thurneysen, § 27).

In modern Irish *ch* shows the two values it possesses in German, and that under similar circumstances; lenited *g* too, written *gh,* has in it the value of *g̊* before *a* and *y* before *i*; similarly lenited *b* (i.e. *b̃*) is expressed in modern Irish by *bh* and has the value of English *w* and *v*. Already in the eleventh century *th* (i.e. lenited *t*) became *h* in Irish, but not earlier. Lenited *d* (mod. Ir. *dh*) coincided with lenited *g* already in the Middle Ages, and has now like it the two values *g̊* and *y* (Thurneysen, § 119).

It will be wrong to think, however, that lenited occlusives were spared further mutations in Old Irish. In initial position they remained without undergoing further weakening, and also medially between vowels after the accent (cf. *bráthir*: Skt. *bhrā́tar, sechitir*: Lat. *sequontur*). Specifically for lenited surd spirants is to be noted that after consonants they remained surd. In all other positions however the lenited occlusives underwent further changes. Thus lenited sonant spirants became surd after tenues; cf. the adjective-suffix *-de* in *macthi* "childish", *corpthi* "bodily" etc. But the sonant was sometimes reintroduced through analogy; cf. *chorpdid* "corporeally". Before other consonants too the lenited spirants undergo various changes (cf. Thurneysen, § 122 ff.). Lenited *s* (*ṡ*) at first became *h* which is retained in pronunciation even in mod. Irish at the beginning of tonic syllables; medially however it has completely disappeared between two vowels, thus *tige* "houses" from **tegesa* (Thurneysen, § 128). The letter *h* alone (i.e. excepting in *th ph* etc.) is a mere decoration in Old Irish script and has no phonetic value. Unlenited *su̯* became *s* as in *siur*: Skt. *svásā,* but lenited it became *f* (through *hv*); hence the word for "sister" appears also as *fiur*. Initial lenited *u̯* was dropped, but unlenited it changed into *f*; thus from I.-E. **u̯iros* "man" we have both *fer* and *er* in Old Irish. These examples will suffice to show the importance of the phenomenon of lenition for Celtic phonology.

Sounds unaffected by lenition were pronounced with greater energy. They are often written double, and that not seldom also in those cases where the original consonant was a simple one; thus *locc* "locus" beside *loc*. Hence *lenited geminata are unknown*. In groups of unlenited consonants, however, both are doubled only in the word *cossce*; otherwise, if double-writing is at all resorted to, only one is doubled; cf. *melltach* "agreeable", *clainnd* "children", *mescc* "drunk", *ardd* "high" etc. (Thurneysen, § 133 ff.).

Celtic accent, like prehistoric Latin accent, was a sharply expiratory subordi-

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nating one, with its seat usually on the first syllable, and has led to the weakening and loss of non-initial syllables. Thus, excepting after *i*, all final vowels disappeared in Old Irish. Dropping of original final vowel: *fir* voc. sg. "o man!" from **u̯ire, muir* "ocean" from **mori, berid* "carry!" from **bherete* (Skt. *bhárata*) etc. Dropping of short vowels which secondarily became final through the disappearance of final consonants: *fer* nom. sg. "man" from **u̯iros, beir* "he carries" from **bheret,* etc. After *i* however the final vowel is retained—unchanged if it is *i* or *u,* but as *e* in the case of *o* and *a* (Thurneysen, § 90); thus Nom. *aile* "another" from **alios* (Lat. *alius*); Gen. *aili* from **alī̆,* Dat. *ailiu* from **alu̯.*

Vowels of middle syllables fared hardly better in Old Irish. In all words (simplex or compound) retaining more than two syllables after the drop of final vowels the vowel of the second syllable too was dropped; in words of five or more syllables the vowel of the fourth syllable too seems to have been dropped (Thurneysen, § 102). Thus from *cesad* "suffering" we have in acc. *cesto* for **cessatho;* similarly *dligthech* "lawful" from *dligeth* "law", *dilse* "peculiarity" from *diles* "own", *apstal* =apostolus (Lat.), *toimtiu* "opinion" from **to-métiu, cosmil* "similar" for **cossamil, ecsamil* "dissimilar" for **ecossamil,* nom. pl. *ecsamli* for *ecossamali* etc. The vowel of middle syllable seems to have been retained however before *cht* as for instance in *cumachte* "strength", *cumachtach* "strong". Analogy sometimes prevents this syncope; thus *sochumacht* (beside *sochmacht)* "capable" after *cumachte.*—Qualitative changes undergone by vowels of middle syllables are bewildering. The quality of such vowels depends largely on the character of surrounding consonants (Thurneysen, § 97 ff.).

A consonant can however have three distinct timbres (see Thurneysen, § 80-84), viz. *i*-timbre (palatal), *a*-timbre (velar) and *u*-timbre(guttural). Thus *l* is not always the same sound as may appear from the script. In Old Irish pronunciation these three different timbres were actually distinguished *(l*^{i}*, l*^{a}*, l*^{u}*)*. Now if a tonic syllable ends with palatal consonant then an anticipatory epenthetic *i* changes the stressed vowel of the syllable into an *i*-diphthong; thus *maith* "good" for *math*^{i}*, ainm* "name" for *an*^{á}*m*^{i}*, deich* "ten" for *dech*^{i} etc. But if the tonic syllable ends with a vowel and the next syllable begins with a palatal consonant, then the epenthetic *i* may or may not appear; thus the plural of *maith* is both *mathi* and *maithi.* Influence of velar consonants on preceding vowel was slight. Guttural consonants however, i.e. consonants with *u*-timbre such as *l*^{u} *t*^{u}, induce *u*-diphthongs in the same way as *i*-consonants induce *i*-diphthongs; thus *daum* for *dam*^{u} (dat. sg. of *dam* "ox"), *neuch* for *nech*^{u} (dat. sg. of *nech* "anyone"), *fiuss* "knowledge" for *fiss*^{u}, etc. If the *u*-consonant belongs to the following syllable then the epenthetic *u* mostly fails to appear; thus *firu* (acc. pl. of *fer* "man").

Let us in this connection mention also the phenomenon of eclipsis, which,

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though nothing but a kind of Sandhi of final *-n*, is of considerable interest for Celtic phonology, particularly as it is known both in Irish and Britannic. Many simple consonants disappeared in absolute final, particularly *d*, but also *t*, *k* and *n* (which in final position represents also original *-m*). The final nasal however often comes to light when immediately followed by a syntactically closely connected word. Thus O. Ir. *nert* (neut.), when absolutely independent, does not show the original nasal ending. But in expressions like *nert n-irisse* "strength of faith" the original nasal of the lost ending of *nert* appears "eclipsing" the initial vowel of the following word. Initial consonants too may be eclipsed in the same way by the lost final nasal of a syntactically connected immediately preceding word. But in their case the lost nasal is regularly expressed in writing only before initial *b d g*. There are moreover indications that through eclipsis initial *p t k* were partly sonorised in Old Irish, though in their case the nasal itself does not reappear as before vowels and sonants (Thurneysen, § 237).

It should now be possible for us to make an idea of the history of Indo-European sounds in Celtic. Normal representation of vowels, after what has been said above, should be looked for only in the first syllable, but, even there, it is rarely found in pristine form, on account of the far-reaching effects of *i-* and *u*-epenthesis induced by vowel-infected consonants.

The Indo-European sound-system was modified in Celtic in the following respects :—The difference between short and long vowels was retained in the early period, but not the difference between short and long diphthongs ; old diphthongs became partly monophthongised, but the new monophthongs again partly became diphthongs ; syllabic nasals and liguids (*n̥, l̥* etc.) developed a distinct vowel (*an, la* etc.) ; *p* became sharply spirantised and largely disappeared altogether ; velars coincided with the palatals, and labio-velars partly became pure labials ; aspirates coincided with corresponding surds and sonants. This is in brief outline the story of Indo-European sounds in Celtic. But we will have to illustrate its details by means of proper exemples.

I.-E. *a* remained unchanged in primitive Celtic. Cf. Ir. *ad·aig* "drives" (*aig* for *ag*^{i}) : Skt. *ájati ;* Ir. *an(a)id* "remains" : Skt. *ániti ;* Ir. *arathar* "plough", Welsh *aradr,* O. Cornish *aradar ,* Middle Bret. *arazr* : Skt.*aritram ;* Ir. *aile* < *al*^{i}*e* : Lat. *alius* "another". In some cases I.-E. *a* seems to have changed to *o* in prim. Celtic ; thus Ir. *muir* (gen. *mora)* "ocean" Welsh *mor* Gall. *Are-mori-cī* : Lat. *mare ;* Ir. *om* "raw" : Skt. *āmá.* — I.-E. *ā* too remained unchanged in primitive Celtic, and appears as *ā* in Irish and Gallic, but in Old Britannic it became *ō,* whence Welsh *aw* etc. Thus Ir. *brāthir* "brother", Welsh *brawd,* Middle Corn. *broder,* Bret. *breur,* Gall. *Bratronos* : Skt. *bhrā́tā ;* Ir. *māthir* "mother", Welsh *modrydaf* "stock of bees", Gall. *matrebo* : Skt. *mātā́.* Excepting in final position (Pedersen, § 32. 4), I.-E. *ō* coincided with *ā* in prim. Celtic and developed in the same way. Thus Ir. *dāṇ* "gift", Welsh *dawn* : Gr. *dō̃ron* (Skt. *dā-) ;* Ir.

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gnāth "known", Welsh *gnawd*: Gr. *gnōtós* (Skt. *jñā-*). Final I.-E. *-ō* however developed into *-ū* in primitive Celtic; Ir. *cū* "dog" from **kṷō* (Skt. *śvă*). — I.-E. short *o* however did not go the way of *a*. In primitive Celtic it remained unchanged as may be seen from Ir. *orbe* "waif": Gr. *orphanós* (Skt. *árbha*); Ir. *roth* "wheel", Welsh *rhod*: Lat. *rota* (Skt. *rátha*), etc. In the dialectical period, however, *o* changed to *u* and *a* under circumstances difficult to determine. In Old Irish, at all events, the attraction of the vowel of the following syllable largely decided which form the vowel *o* would assume. Thus Ir. *muin* "neck" from *moni-* (Eng. *mane*), Ir. *mruig* "region" (cf. Gall. *Allo-broges*). Under the influence of a following *a* on the other hand the prefixes *ro* and *to* may appear as *ra* and *ta* respectively (Thurneysen, § 78). Change of *o* into *a* through the attraction of a following *a* seems to be suggested by Welsh *garan* "crane" (Gr. *géranos*); this change is clearly in evidence also in Irish *ar-*, the proclitic form of the preposition *er*, etc. (see Pedersen § 28. 7, Thurneysen § 112.1.a). — I.-E. *e* remained unchanged in prim. Celtic and was normally retained as such in the historical dialects. Thus Ir. *ech* "horse", middle Welsh *ebawl*, Gall. *epo-*: Lat. *equus* (Skt. *áśva*); Ir. *cethir* "four", Welsh *pedwar*, Corn. *peswar*, Bret. *pevar*, Gall. *petor*: Gr. *téttares* (Skt. *catvâras*); Ir. *ben* "woman": Old High Germ. *quena* (Skt. *gnâ, -jani-*). Through the attraction of a following *i* this *e* however may change into *i* in Irish; thus *mil* "honey": Gr. *méli*, *siniu* (Lat. *senior*) "older" from *sen* "old". — I.-E. long *ē* coincided with I.-E. *ī* already in prim. Celtic. Thus Ir. *fīr* "true", Welsh *gwir*: Lat. *verus*; Ir. *rī* "king" (gen. *rīg*), Welsh *rhi* "prince", Gall. *-rix*: Lat. *rēx* (Skt. *rāj-*); Ir. *sīl* "seed": Lat. *sēmen*. I.-E. *ē* and *ī* have had therefore the same history in each of the Celtic dialects.

Of the two extreme vowels, I.-E. *i* was perhaps normally retained unchanged in primitive Celtic; thus Ir. *find* "knows" Gall. *Vindo-bona* (place-name): Skt. *vindáti*; O. Ir. *ibid*: Skt. *píbati*, etc. In later dialects however this *i* mostly changed to *e*; thus Ir. *fedb* "widow", Welsh *gweddw*: Skt. *vidhávā*. Similarly I.-E. *u* too seems to have remained unchanged in prim. Celtic; cf. O. Ir. *sruth* "river": Skt. *srutáḥ*, O. Ir. *dub* "black" Welsh *du* Gall. *Dubis* (name of a river): Gr. *túphlos*, but O. Ir. *cloth* "fame": Skt. *śrutá* and O. Ir. *dron* "hard": Skt. *dāruṇá* (Thurn., § 69); Gall. *Dubno-reix* "world-king" from *dubn-* (according to Pedersen, § 27). In later dialects however we find both *u* and *o* for I.-E. *u*, but as a rule only *o* in Irish. — I.-E. long *ī* remained unchanged in Celtic; cf. O. Ir. *rīm* "number": O. H. G. *rīm*, O. Ir. *lī* "colour" Welsh *lliw* (Lat. *līvor*), etc. I.-E. long *ū* was retained unchanged in Irish, but in Britannic it became *ī* at a very time. Thus O. Ir. *rūn* "secret" Welsh *rhin*: Goth. *rūna*, O. Ir. *cūl* "back" Welsh *cil*: Lat. *gūlus*.

It is difficult to get a clear idea of the diphthongs in Celtic, for all of them have undergone violent changes of different nature in the different dialects, and even in the same source representation of the same diphthong often varies.

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I.-E. *ai* (Pedersen, § 38) seems to have been retained unchanged in the oldest period as these examples suggest :— O. Ir. *gae* "spear" Gallo-Latin *gaesum* : Gr. *khaĭos*, O. Ir. *caech* "one-eyed" : Lat. *caecus*, O. Ir. *ais* (also *aes*, *ois*, *oes*) "age" Welsh *oes* : Skt. *áyus*. —Similarly I.-E. *oi* appears both as *oi* and *ai* in Old Irish (later *oe*, *ae*) ; thus O. Ir. *oin·oen* "one" : O. Lat. *oino(m)*, O. Ir. *moin main* "treasure" Gall. *Moenus* (name of a river) : Lat. *mūnus* (from **moinos*) : Lith. *maĭnas* "exchange".— The third *i*-diphthong *ei* became *ē* already in prim. Celtic, for the change is attested by Irish as well as Gallic dialects ; cf. Gall. *dēvo-gnāta* = Skt. *deva-jātā*, O. Ir. *·tēged* "he used to go" : Goth. *steigan* : Gr. *steíkhein* (Pedersen, § 40). But, the archaic sources excepted, already from the seventh century, this *ē* out of *ei* appears in Old Irish as *ia* if followed by an *u*-infected consonant or a dark vowel (Thurneysen, § 51) ; hence from the same root we have *tēgot* (archaic), *tiagu* "I do", *tiagat* "they go". In this way it has come about that *ē* and *ia* frequently alternate in one and the same root in Old Irish.

All the three *u*-diphthongs became *ō* in Irish, which towards the end of of the seventh century became *ua*. In Gallic however they were kept distinct ; thus the root *lau-* retains its original form in Gall. *Cassi-ve-llaunus Cata-launi* etc., but appears greatly modified in O. Ir. *lōg luach* "reward". The I.-E. diphthong *eu* is in evidence in Gall. *Teutates* (name of a god), but the root of this word appears as *tua* in O. Ir. *tuath* "people" (: Goth. *þiuda*) ; cf. also O. Ir. *sruaim* "stream" : Gr. *rheũma*. I.-E. *ou* may be seen in its original form in Gall. *Roudius*, but the root of this word appears with the same *-ua-* in O. Ir. *ruad* "red" (Lat. *rūfus* etc.).— In the final of a few monosyallabic words the original *u*-diphthong is sometimes retained in Old Irish, though later monophthongised ; thus I.-E. **dṷōu* : O. Ir. *dau* "two" (later *dō*) : Skt. *dváu*, I.-E. **nau-* : O. Ir. *nau* "ship" (later *nō*) : Skt. *naúḥ* ; cf. also O. Ir. *bou* = Skt. *góḥ*(gen.) (Pedersen, § 37·3).

About the semi-vowels it is important to note that *i̯* mostly disappeared at a very early date in Irish. Thus O. Ir. *oac* "young", but Middle Welsh *ieuanc* Bret. *iaouank* Gall. *Iouincus*—all derived from the same stem as Lat. *iuvencus* and Skt. *yuvaśáḥ* ; similarly O. Ir. *āth* "ford" connected with Skt. *yáti*, O. Ir. *aig* "ice" but Welsh *ia* (both from stem *i̯agi-*). Early disappearance of intervocalic *i̯* is attested by O. Ir. *māo* "greater" from **mā-i̯ōs* (Lat. *maior*).— The semivowel *u̯* in Irish became *f* (initial) or *v* (written *b*), but disappeared after consonants ; in Britannic it became g^w which in medial and final position again became *w*. Examples :—Ir. *fedb* "widow" Welsh *gweddw* : Skt. *vidhávā* ; Ir. *berb(a)id* "boils" Welsh *berwi* : Lat. *fervere* ; Ir. *tarb* "bull" but Welsh *tarw*. Disappearance of *u̯* after consonant in Irish is clearly proved by O. Ir. *siur* "sister" but Welsh *chwaer* : Skt. *svásā*, O. Ir. *cethir* "four" but O. Welsh *petguar* : Skt. *catvâraḥ*, O. Ir. *ech* "horse" against Skt. *áśva*. In absolute initial *u̯* appears as *gw* in Britannic as in Welsh *gwir* "true" but Ir. *fír* (: Lat. *vērus*).

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The Indo-European liquids *r̥* and *l̥* became *ri* and *li* respectively before consonants already in primitive Celtic, and the *i* thus secondarily originated developed in the same way within Celtic as the original I.-E. *i*, which, as we have seen above, is in Old Irish widened into *e* through the attraction of an open vowel in the following syllable. Thus O. Ir. *lethan* "broad" Welsh *llydan* Gall. *Litana* : Skt. *pr̥thú* ; O. Ir. *breth* (*ā*-stem) "carrying" : Skt. *bhr̥ti* ; O. Ir. *drech* "face" Welsh *drych* "look" : Skt. *dr̥ś-*. But the Celtic representatives of the liquids often assume an *a*-timbre also. Thus O. Ir. *tart* "thurst" : Skt. *tr̥ṣṭá*, O. Ir. *art* "bear" : Skt. *r̥kṣa* (from I.-E. **r̥kp-*), O. Ir. *frass* "rain" : Skt. *vr̥ṣṭá*, etc. I.-E. *r̥* therefore may assume four forms *(ri, re, ar, ra)* in Celtic, similarly *l̥* (Thurneysen, § 214).—As for the syllabic nasals *n̥* and *m̥*, they too have developed a distinct vowel in Celtic ; thus the Indo-European prohibitive particle **n̥-* appears in Irish as *in*, but in Welsh, Breton and Cornish as *an-* before consonants. As for *m̥*, let us mention Ir. *imb* "about" but Welsh *am-*, Gall. *ambi* etc.—all from I.-E. **m̥bhi* (> Skt. *abhi*).

Coming now to the occlusives, we have to note first of all that I.-E. aspirates were de-aspirated already in primitive Celtic. The aspirates therefore have had the same history in Celtic as the corresponding non-aspirates, but an exception will have to be made in this regard of g^wh : at a very early date I.-E. g^wh lost its labial element in Celtic and became a velar *gh* (> *g*), while the I.-E. g^w retained the labial element on the whole (Thurneysen, § 216). Original velars and palatals coincided in one series in Celtic as generally in all Western Indo-European dialects (LIS., pp. 7-8).

I.-E. k^w lost its labial element in Old Irish and coincided in it with the non-labial guttural tenuis, but in Britannic the labial element in *k* got the upper hand to the result that its guttural element was completely lost ; hence the normal representatives of k^w in Irish and Welsh are *c* (=*k*) and *p* respectively, —a fact which cannot fail to remind us of the *q*-Italici and the *p*-Italici (IC., vol. VII, p. 465). Thus O. Ir. *cruim* "worm" but Welsh *pryf* (Skt. *kr̥mi*), O. Ir. *cren(a)id* "buys" but Welsh *prynu* (Skt. *krīṇâti* : Gr. *príasthai*), O. Ir. *macc* "son" but Welsh *map*, etc. Yet, in the neighbourhood of *u* or *o* the labio-velars are usually delabialised and become pure velars also in Britannic. We have a striking example in Welsh *bu-gail* "cowherd" corresponding to Gr. *bou-kólos* "cowherd" : the preceding *u*-sound has here prevented the labialisation which is in evidence in the parallel Greek form *ai-pólos* "shepherd" (Pedersen, § 79).— The position of Gallic in this regard is difficult to ascertain, for both *p*-forms and *q*-forms are in evidence. This is one of the reasons which have led scholars to think that the Gauls were not linguistically homogeneous (Pedersen, p. 4).— I.-E. g^w normally appears as *b* in Celtic ; cf. O. Ir. *beu beo* "living" : Welsh *byw* (Skt. *jīva-*), O. Ir. *imb* "butter" : Lat. *unguen* (Skt. *anákti*). The labial element

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of g^w has therefore triumphed over the guttural in Celtic. This cannot be said however of g^wh which in Celtic completely lost the labial element and became a pure velar. I.-E. *g, gh* and g^wh have therefore the same history in Celtic (Thurneysen, § 223 c). And since palatals coincided with the gutturals in the *Centum*-languages, I.-E. $\hat{g}$ and $\hat{g}h$ too coincided with the above three sounds in Celtic. Each of these five sounds appears normally as *g* in Old Irish. Examples :—O. Ir. *ad·gnin* "knows" Skt. *jānāti* (I.-E.$\hat{g}$) ; O. Ir. *gaim-red* "winter" Skt. *himá* Gr. *kheimṓn* Avest. *zima* (I.-E. $\hat{g}^h$) ; O. Ir. *teg* "house" Skt. *sthag-* "to cover" Gr. *tégos* "roof" (I.-E. velar *g*) ; O. Ir. *tiagu* "I go" Skt. *stighnoti* Gr. *steikhein* (I.-E. velar *gh*) ; O. Ir. *grith gor* "heat" Skt. *gharmá* Lat. *formus* (I.-E. g^wh).—To complete the story of guttural occlusives we have further to mention $\hat{k}$ and *k* (pure velar). The best example of $\hat{k}$ in Celtic is of course O. Ir. *cet* (nasal preserved in Welsh *cant*) corresponding to Skt. *śatám* ; it is in evidence also in O. Ir. *deich* "ten" Welsh *deg* Skt. *dáśa* and O. Ir. *ocht* "eight" Welsh *wyth* Skt. *aṣṭáu* ; as an example of I.-E. *k* (pure velar) may be mentioned O. Ir. *fichid* "fights" derived from the same root (I.-E. **u̯eik-*) as Lat. *vincere*.

Of the other occlusives only *p* requires special consideration, for in initial and intervocalic position it became a bilabial spirant at an early stage and then, over the stage *h*, disappeared altogether in Celtic. Thus O. Ir. *athir* Gall. *Ateronius* (proper name) : Skt. *pitā́*, O. Ir. *il* "much" : Goth. *filu* Gr. *polús* Skt. *purú*, O. Ir. *lethan* "wide" Welsh *llydan* Gall. *Litana-* : Gr. *platús* Skt. *pṛthú*, O. Ir. *niæ* "sister's son" Welsh *nei* : Lat. *nepos* Skt. *nápāt*, O. Ir. *tee* "hot" : Skt. *tápant-*. This important law of Celtic phonology is however defied by the word for "five" I.-E. **pe̯nk^{w}e*, and that in the same way by Irish and Latin on the one hand (cf. Lat. *quinque* : O. Ir. *coic*) and Britannic and Oscan-Umbrian on the other (cf. Osc.-Umb. *pumpe-* : Welsh *pimp*). In the treatment of I.-E. **pe̯nk^{w}e*, therefore, Irish agrees more with Latin than with Britannic, which, on its part, shows greater affinity in this regard with *p*-Italic than with Irish. Noninitial and nonintervocalic *p* too was weakened or assimilated in various ways in Celtic. Thus O. Ir. *secht* "seven" Welsh *saith* : Skt. *saptá*, O. Ir. *necht* "niece" Welsh *nith* : Skt. *naptṛ́ḥ*, O. Ir. *suan* Welsh *hun* : Skt. *svápna* etc.—I.-E. *b* however has been preserved, cf. O. Ir. *ibid* "drinks" : Lat. *bibit* Skt. *píbati*. So also I.-E. *bh* as *b* ; cf. O. Ir. *berid* "carries" : Skt. *bhárati*. —Indo-European dentals have on the whole been well preserved in Celtic. Cf. O. Ir. *tri* "three" Welsh *tri* : Skt. *tráyaḥ*, O. Ir. *roth* "wheel" : Lat. *rota* Skt. *rátha*, O. Ir. *daur* "oak" Welsh *dar* : Skt. *dā́ru*, O. Ir. *sa(i)did* "sits" : Skt. *sad-*, O. Ir. *mid* "mead" : Skt. *mádhu*, etc.

We thus see that in spite of many striking changes Celtic has on the whole retained the structure of Indo-European sound-system. In nominal and verbal flexion too, we shall now see, Celtic has been fairly conservative, though some of

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its innovations, such as the principle of univerbalisation, are so radical that they may—and did—produce the impression that Celtic is not at all a branch of the Indo-European family. All the three genders are still distinguished in Old Irish texts, though about 1000 A.D. the neuter in nominal flexion was completely merged in masculine and feminine. In Britannic there is no direct trace of the neuter gender, but the fact that Latin neuter words passed on to the Irish by Britons retain their original gender proves the separate grammatical existence of neuter nouns in Britannic till comparatively late times (Pedersen, § 408. 2).—Old Irish substantives retain all the three numbers (the dual always in connection with the numeral "two"), but Old Irish adjectives and pronouns know no longer any dual number distinct from the plural. In Britannic plurality in regularly expressed not by flexional endings, but by means of collective-suffixes, as sometimes also in Old Irish (Pedersen, §§ 411-2).—As for the cases, out of the original eight Old Irish still knows five, for the case which in Irish grammar is usually but wrongly called "dative" comprises also instrumental, ablative and locative. Moreover it is an innovation of Old Irish that in singular the accusative of all feminine stems is the same as the dative (Thurneysen, § 247). In Britannic case-flexion has been altogether given up (Pedersen, § 413).

Let us now consider the endings of nominal *o*-stems in Celtic. The original ending *-os* in nom. sing. has been fully preserved in Gallic proper names like *Segomaros ;* in Irish it has phonologically disappeared, cf. O. Ir. *fer* "man" from **u̯iros*. In genitive singular the original Celtic ending of *o*-stems was *-ī ;* cf. Ogham *maqi* "of the son", Gall. *Segomari*, etc. This is clearly an Italo-Celtic innovation, for a similar ending is found also in Latin (cf. *amīcī* etc.) but not in Oscan-Umbrian (Sommer, p. 341). The explanation of the genitive ending *-ī* should be the same both in Latin and Celtic, be it Prof. Sommer's original theory that this is identical with the feminine ending *-ī* (IC. vol. viii, p. 100), or Wackernagel's theory, which Sommer himself now prefers to his own, that genitive *-ī* is a *cvi*-formation like *mithunī-karoti* (cf. also Pedersen, § 426). In Old Irish texts however this genitive ending *-ī* is completely lost, though its effect on the preceding stem-vowel is clearly perceptible ; thus nom. *fer* but gen. *fir*.—The original Celtic dative ending in the singular of *o*-stems seems to have been *-u* as in Gall. *Alisanu* which may be derived from the Indo-European instrumental ending *-ō* as in Skt. *sánā* (LIS., p. 128), or from the I.-E. dative ending *-oi* as in Gr. *lógoi,* or from the I.-E. ablative ending corresponding to Skt. *-āt*. Old Irish however clearly suggests the ending *-ōi* in dative singular, cf. dat. *fiur* (< **ferōi*) from *fer* (nom.). This *-ōi* is clearly in evidence in Avestan *-āi* and Skt. *-āya* (LIS., p. 128).—The form in accusative singular *(fer)* is without ending, for the ending *-om* was phonologically dropped ; the nasal of the dropped ending may however "eclipse" a following sound as explained above.—The form *fir* in vocative singular clearly shows the loss of the ending *-e* which however has left its effect on the stem-vowel.--The nasal ending of neuter stems in nom. and acc.

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sing. having been phonologically lost, there is for practical purposes no difference between masculine and neuter flexion of *o*-stems in Celtic.

Celtic nominal *o*-stems, like those of Greek and Latin, show the pronominal ending *-oi* in nominative plural; cf. Gall. *Tanotaliknoi* and O. Ir. *fir* (from **viroi*). The form in gen. pl. is *fer* (from **virōm*). The Indo-European *bh*-ending in dative plural (Skt. *-bhyas*) is well attested in Celtic; cf. Gallic *materbo Namausikabo* "to the Nemausian Mother-goddesses" and O. Ir. *fer(a)ib* from **verobhis*. The Old Irish form in accusative plural is *fir-u*: the *-u* here is the regular phonological representative of the original *-ōns* (cf. Skt. *devāṁś ca*). For faint traces of the ending *-su* in loc. pl. see Pedersen, § 413 Anm.—The plural ending *-ā* of neuter *o*-stems (cf. Skt. *yugā* from *yugám*) signifying *one* collection of single entities (LIS., p. 22), can be inferred from O. Ir. forms like *scel* "stories" (< I.-E. **skʷetlā*).—In dual the ending *-ou* of nom. and acc. (Skt. *-au*) is clearly in evidence in forms like O. Ir. *dau* "two". But otherwise we find here endingless forms such as *fer* of which the prototype should have been **u̯irā* and not **u̯irou*. The dative dual ending as in *fer(a)ib* is clearly derived from something like *-obhim* (cf. Skt. *-bhyām*). In genitive dual we again meet with the endingless form *fer* which is supposed to be derived from **virou*: nothing like that is attested in Sanskrit, but cf. Lith. *pusiau* from *pùse* (Pedersen, vol. II, p. 84).

To keep within our limits we must desist from going further into the details of Celtic nominal flexion. It will be more profitable to pay attention to the pronouns, for Celtic pronouns (along with verbal prefixes) behave in a strange and utterly non-Indo-European way. Unemphatic forms of pronouns may be prefixed, infixed or suffixed to syntactically connected words, thus leading to univerbalisation of a kind otherwise unknown in Indo-European languages. These unemphatic forms however are so mutilated that usually it is necessary to strengthen them further by means of particles which themselves are often of pronominal origin. Full-form personal pronouns on the other hand behave like those of the Older Indo-European dialects and so does not appear at all as subjects of verbs, their purpose being served by verbal endings. As objects and after prepositions the personal pronouns appear in a reduced form, and that either suffixed (to preposition or simple verb) or infixed (after the first preposition of a compound verb). The normal form of the pronoun of the first person singular is *me* ("I") in Old Irish, its emphatic form is *me(i)sse*, and its infixed form is only *m*; similarly from *tu* "you" we have the emphatic *tussu* and infixed *t*. The normal and emphatic forms are used as predicate-nominatives after the copula; thus *is me* or *is messe* "it is I" (the copula expresses also the subject "it"). The strengthening particle *-su -se* is in origin connected with Skt. *sáḥ* "he". Irish *messe* is therefore literally equal to Skt. *so 'ham* "I am he" (Pedersen, § 480). The pronominal forms which do not serve as predicate-nominatives are always weakly accented and therefore reduced to a single sound only (the initial); these reduced pronominal forms are called "infixed" when they

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are subjoined to a verbal prefix and thus come between the prefix and the verb. Thus *ro-m·gab* "(he) seized me"; here *ro-* is the prefix and *-m-* the infixed pronoun (see Thurneysen, § 408). Suffixed pronominal forms may come after verbs or prepositions; thus *beirthi* "he carries him" from I.-E. **bhereti+im*, *beirthins* "he carries them" from I.-E. **bhereti+sōns*, *dim* "from me" (*di* = from), *dom* "to me" (*do* = to).

Before beginning our treatment of the Celtic verbal system it will be well to tarry a little over the Old Irish preverb *ro-* (Old Welsh *ry*) mentioned just above. It is derived from I.-E. *pro-* (Skt. *pra-*), but in function it resembles most the Germanic preverb *ga-* like which it combines almost with every simple verb and confers on it a perfective meaning (Thurneysen, § 519). Though one and the same, this prefix *ro-* in its relation to verbs behaves in two very different ways. When mobile it takes its position always after the last pre-tonic preverb be it a preposition or a particle; hence it has to change place in the same word-complex when with the accession of new prefixes the accent-situation is changed. Compare the univerbal positive sentence *im·rui-d-bed* "he has been circumcised" (here *ro* in a mutilated form comes *after* the pronoun *im*) with its negative counterpart *ni-ro·im-di-bed* "he has not been circumcised" (here *ro* comes *before* the pronoun).† The fixed *ro* on the other hand holds its position always immediately before the verb; thus positive *as·ru-bart* "he has said" against negative *ni·erbart* (< **ni-es-ro-bert*) "he has not said". It cannot be said however with absolute certainty where *ro* would be fixed and where mobile (Thurneysen, § 521). For the accent of verbal compounds on which the position of prefixes like *ro* largely depends we have to content ourselves here with referring to Thurneysen's lucid treatment of the subject (§§ 34 ff.).—Next to *ro* in importance is the prefix *no* which is however not perfective in meaning.—The normal forms of the personal pronouns are *me* "I", *tu* "thou", *(h)e* "he", *si* "she" *(h)ed* "it", *sni* "we", *si* "you", *(h)e* "they". (Ir. *h* is only a graphic symbol and has no phonetic value.) For other forms of these personal pronouns see Pokorny, §§ 158 ff. and Pedersen, § 481.

The Irish verbal system shows many striking features. It has only two numbers, singular and plural; a dual subject takes a plural verb-form. The active and the deponens have three persons in each number. But the passive has a special form only in the third person plural; for the rest, an uncharacterised form serves for the third person singular in passive, and this form, with suitable infixes, serves also for the first and the second person singular and plural. Thus 3. pl. *cart(a)ir* "they are loved", but 3. sg. *carth(a)ir* "he is loved", 2. pl. *no-b·carthar* "you are loved", 2. sg. *no-t·charthar*, 1. sg. *no-m·charthar* "I am loved". The corresponding perfect forms take the prefix *ro;* thus 1. sg.

† Univerbal sentences like these, admitting a pronominal element between the preverb and the verb, are known as non-genuine compounds. For details see Pedersen §§ 550 ff.

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ro-m·charad "I have been loved", *ro-t·charad* "you have been loved" etc. (see Thurneysen, § 533). This unchanging universal type in passive with varying infixed pronouns is a remarkable departure from the normal Indo-European system. Not so striking, but peculiar enough, is the difference between the personal endings of *absolute* and *conjunct* flexion. The latter are taken by all verb-forms compounded with prepositions including the all-important *ro* and *no* as well as by simple verbs when they come after certain negational, interrogative, and relative particles (Thurneysen, § 535. 2b). When the verb is not governed by any such preposition or particle it takes absolute endings. Thus abs. *berid* "he carries" but conj. *do·beir* "he brings", *as·beir* "he says", *ni·beir* "he does not carry" etc. The endings of conjunct flexion are largely those of Indo-European augment-tenses, but it is an innovation of Celtic that they are in it taken generally by prefixed verbs. Indo-European primary endings are to found in the absolute flexion (see however Pedersen, § 602).

Five types of Indo-European present-stems can be traced in Old Irish. (1) The *bhū*-class (thematic, with accent on the root-vowel) is represented by verbs like *berimm* "I carry"; (2) the *na*-class (*benimm* "I strike") corresponds to Gr. *pérnēmi* "I sell" etc.; (3) the *ā*-class (*carimm* "I love") is considered to be a mix-up of Indo-European *ā*-stems (e.g. Lith. *māto-me* "we see") and *āyo*-stems (e.g. O. Ch. Sl. *dělaje-mŭ* "we make"); (4) the *i*-class (*gaibimm* "I take") is to be connected with Lat. *capiō* etc.; (5) the *ī*-class (*leicimm* "I let") too is a composite group in which various Indo-European stem-formations have coincided (see Pedersen, § 600). In flexion however there is practically no difference between these stem classes, so the endings of class (1) may serve for all the rest too:— Sg. 1. *berimm* 2. *beri* 3. *berid* Pl. 1. *bermi* 2. *berthe* 3. *berit*; corresponding forms of the conjunct flexion are:— Sg. 1. *-biur* 2. *-bir* 3. *-beir* Pl. 1. *-beram* 2. *-berid* 3. *-berat*. Here the absolute ending of the thematic class in 1. sg. is clearly an innovation common with Sanskrit (cf. *bhárāmi*), for the original ending was *-ō* (as in Greek) which is in evidence in the corresponding conjunct ending (O. Ir. *-biur*: Gr. *phérō*).—The abs. form *beri* in second person singular may be directly derived from I.-E. **bherei*, or indirectly, by way of analogy, from **bhere-si*; the conjunct form *-bir* at all events should be connected with the former; an Indo-European ending *-ei* in second person singular is actually suggested by Lith. *vedì* "you lead" etc.—In third person singular Celtic has taken over Indo-European secondary endings; abs. *berid* from I.-E. **bheret is*, and conj. *-beir* from I.-E. **bhere-t*.—In first person plural the absolute form *bermi* is supposed to be derived from **berom ni* by Pedersen, while the corresponding conjunct form *-beram* is the direct descendant of I.-E. **bhero-mos*.—In second person plural the absolute form *berthe* does not agree with the primary Indo-European form **bherete* (which is presupposed by Gr. *phérete* but not by Skt. *bháratha*, cf. however Impf. *ábharata*); Pedersen therefore derives it from **bherete wes* (verb plus pronoun).—In third person plural the conjunct ending is clearly of Indo-European antiquity, cf. O. Ir. *-berat* from **bheront*; but the

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origin of the corresponding absolute form *berit* is uncertain, perhaps from prim. Celt. **beront ei* or **beront oi* (Pedersen).

Indo-European imperfect was an augment-tense of the present. In Celtic there is no augment, but in Irish—and this should hold good for Celtic in general—imperfect forms are shown only by compound verbs (Pedersen, § 604). Therefore Irish imperfect is practically the same as conjunct present. Middle Welsh knows an absolute imperfect different from conjunct imperfect, but this is a later development.—As for imperative, we have only to note that, excepting in second person singular, its forms are identical with those of conjunct indicative. The endingless thematic form in second person singular imperative may be seen in O. Ir. *beir* (= Skt. *bhára)* etc., but there is no trace in Celtic of the corresponding athematic ending *-dhi* (Skt. *ihi*, Gk. *ithi* etc.).—In Irish there is an *ā*-subjunctive (Thurneysen, §§ 595 ff. calls it *a*-subj.) and an *s*-subjunctive. The former is clearly of Italo-Celtic antiquity (IC. vol. VIII, p. 105) : corresponding to Lat. *agăm agās agăt* we have Irish *bera bere berid* (conj. *-ber -bere -bera).* The *s*-subjunctive (e.g. sg. 1. *tiasu* 2. *tesi* 3. *teís* from *tiag-* "to go") is in origin an *s*-aorist (Pedersen, § 609).—The endings of the *ā*-subjunctive are used also in the *ā*-future which is usually reduplicated (cf. *cechna* "I shall sing" from *can-*, but *bera* "I shall carry" from *ber-).* There is also an *s*-future, likewise reduplicating (cf. *gigsea* "I shall beg" from *guid-* "to beg"), by the side of the unreduplicating *s*-subjunctive of aoristic origin mentioned just above. Irish *b*-future (called *f*-future by Thurneysen, § 634), e.g. *rannfa* "I shall divide" from *rann-*, has an exact parallel in Latin (see IC. vol. VIII, p. 105), but its origin is unknown. The original meaning of both the *ā*-future and the *s*-future should have been subjunctive.

Celtic preterites are derived partly from Indo-European aorists and partly from Indo-European perfects. The *s*-preterite (e.g. *gab-s-u* "I took") is the direct descendant of I.-E. *s*-aorist (type : Skt. *á-bhār-ṣ-am*, Gr. *é-deik-s-a).*—The *t*-preterite is a Celtic innovation. Its origin is to be sought in Indo-European root-aorist forms like Skt. *á-kar* < **á-kart.* The final consonant of this and analogous forms came to be regarded as belonging to the stem, hence the flexion *·biurt* "I carried" *·birt* "you carried" etc. from Celtic *ber-* (Pedersen, § 619).—There is also a suffix-less preterite in Celtic, forms of which come partly from Indo-European root-aorists (e.g. Ir. *lod* "I went" from **ludho-m*, cf. Gr. *é-luthon),* but mostly from Indo-European perfect (see Pedersen, § 620. 2).—As example of the deponential *r*-flexion, which Celtic fully shares with Latin, let us mention three absolute present-forms of the Old Irish verb *labr-* "to speak" : Sg. 1. *labrur* 2. *labrither* 3. *labrithir.*

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MISCELLANEA

(1)

THE FORTRESS POLICY IN KAUṬILYA'S ARTHAŚĀSTRA

Kauṭilya's Arthaśāstra Book VII Chapter XV (Prakaraṇam 119) explains in more than usually detailed and systematic manner the reasons for which a weaker power, in the absence of assistance, should "have recourse to a fortress." The writer contemplates, of course, the typical Indian stronghold though, as one passage shows, not without control of surrounding territory. The principles at issue, however, are very much those which have governed the defensive policy of Great Britain as an island fortress in the second and third year of the War and a brief analysis may help to distinguish the underlying permanent value of Kauṭilya's work from its more ephemeral relevance to warfare in ancient India.

No less than sixteen reasons for adopting the "Fortress policy" are enumerated, political, strategical (both in defence and offence) and economic. First comes the opportunity for negotiations, in the schematic system of allied and hostile states which is the basis of Kauṭilya's foreign policy, a consideration in which some reality may be found if interpreted in more general terms. Stimulating attack on the enemy by irregulars on his borders, and sowing dissension in his camp through partisans, are political factors which are as much a living reality in the "fortress policy" of 1941/1942 as they were to the Indian state ; though we may stop short in these days at direct attempts on the enemy at close quarters through "agents with weapons fire poison or by magic means" *(aupaniṣadikair vā* : "Magic devices" or "secret weapons" the shade of difference in meaning is not so easy to determine). It is an integral part of the fortress policy "gradually to effect a conspiracy when the enemy's allies and army are distressed by destruction, expenditure and absence abroad", just as one hopes that the V campaign may eventually derive strength from the enemy's exhaustion through the attack on Russia. No less relevant to modern conditions is the opportunity for detachment of one of the hostile powers by treaty of peace, with the further consequence of involving the principal enemy in general discontent. "Anger will be roused against him all round when he has come to terms with me" reflects the beleaguered power, (as was experienced, in the reverse position, when Belgium succumbed.)

The strategical advantages of the "Fortress policy" are on the defensive side those of concentrating forces and exposing the enemy to

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difficulties in approach, disadvantage in attack, and isolation in success. "Or if he enters he will not get out", are the final words, that we heard so often in England in the critical months of the year 1940. But beyond that, Kauṭilya's picture of guerilla warfare envisages the advantages of taking the offensive from a well-defended base, cutting off the supplies from the enemy's head quarters, harrassing the enemy by night operations or approaching through low ground, and attacking him with irregular forces when exhausted. There is one curious sentence* which seems to envisage exactly the policy of basing a general attack on weak spots created by raids (though Dr. Shama Sastri's interpretation of the key-word *Daṇḍopanayena,* which I take to mean "applying or bringing up a force", would give a quite different meaning.) Finally comes the economic advantages, so unexpected if one thinks only of the typical Indian fort on a hill top, but essential to the conception of the "fortress policy" as applied to a large territory : "If I take my stand here, I shall maintain the prosperity of a wide area" (and so of course ensure permanence of supplies.) Here too are words which well describe the position of the island on the defensive and struggling to maintain production in its own territory. The "fortress" itself, it is to be remembered, should, on Kauṭilya's instructions, have been stored with provisions for some years, a step which pre-war England began to take so late.

The points brought out are not merely a casual summary of interesting coincidences ; they illustrate the depth and penetration of Kauṭilya's political reasoning in that so many of the principles he enumerated are as true to-day, in their wider application, as they were in his on the smaller scale of warfare between Indian states. And I cannot leave the subject without mentioning the final flash of insight and vivid compression in which Kauṭilya condemns useless attack as "moving against the enemy like moth-and-flame", inimitable description of a premature "Second front".

On the other hand, curiously lacking throughout the whole picture is the conception of active civil moral which has been the life-blood of the island fortress. Nothing in fact could be more significant of Kauṭilya's realistic attitude than the calmness with which he turns from this analysis of the "fortress policy" to describe the next best alternative, of complete dependence of the weaker State on the stronger, in terms which would apply almost word for word to Europe under the German heel !

C. W. Gurner.

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* दण्डोपनयेन वास्य रन्ध्रमुत्थाप्य सर्वसंदोहेन प्रहरिष्यामि ।

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(2)

ŚĀNTIPĀṬHA AND THE AFFILIATION OF UPANIṢADS.

Among the principal Upaniṣads of the older stratum, Aitareya has been ascribed to the Taittirīya (Black YV) and the Atharvaveda (see Ātharvaṇa Upaniṣads, ed. Bibliotheca Indica, p. 394). Kena, besides being attached to the Talavakāra school of the Sāmaveda, is stated to belong to the Atharvaveda with a slightly varying text ; and each version has a separate commentary. As for Kāṭhaka, some MSS connect it with the Yajurveda, e.g., the Chambers MS of the comm. ; and it heads the list of the Black Yajurvedic Upaniṣads in the Muktikopaniṣad, probably owing to the legend of Naciketas common to both. Colebrooke notices its ascription also to a SV-school. Moreover,it is regarded as an AV-upaniṣad. Mahānārāyaṇa of the Taittirīya school is ascribed also to the AV. Among the later Upaniṣads, Garbha and Mantrikā (= Cūlikā) are counted by Rāmānuja as AV-Upaniṣads, but Muktikā contradicts him by attributing the former to the Black, and the latter to the White YV. So we find that there is no uniform tradition as to the affiliation of the Upaniṣads.

This Muktikā Upaṇiṣad names only 108 Upaniṣads school by shcool, providing them with seemingly appropriate Śāntipāṭhas. And it seems to be a post-Rāmānuja Upaniṣad. It does not mention the Praṇava Upaniṣad of Gopatha Brāhmaṇa, I. 1. 16-30, that dwells at length on the cosmogonic import of the mystic syllable ōm. Rāmānuja follows the authority of the Carṇavyūha (Atharvaveda-pariśiṣtas, XLIX. 4. 4), which mentions 28 AV-Upaniṣads among which Cūlikā and Garbha occupy the fifth and the eighth positions respectively ;* whereas Muktikā enumerates 31 AV-Upaniṣads. The fact is that many apocryphal Upaniṣads come in to fill up the hiatus in the meantime and evidently Muktikā is chronologically a recent treatise in comparison with AV-Pariśiṣtas. It is not to be thought that this Upaniṣad simply adds 3 new Upaniṣads to the list of AVP. It has deliberately left aside many works of the latter and has appended a large number of new recruits.

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* M. Bloomfield has got only scanty justification for his counting of AV-upaniṣads at 27. He takes the two upaniṣads of AVP. namely, Ekadaṇḍī and Sannyāsa-vidhi, to be one. The Caraṇavyūha of AVP which served as an authority for him runs as follows : तत्र ब्रह्मवेदस्याष्टाविंशतिरुपनिषदो भवन्ति । (see AVP, loc. cit., edited by Bolling & Negelein. There are no *variae lectiones* even for the above text.)

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We have seen that it is not always an easy task to ascertain the schools which the Upaniṣads belong to on the basis of MS-tradition. The Śāntipāṭha-tradition also fails to throw sufficient light on this puzzling problem arising out of cross-divisions. Muktikā assigns for the Aitareya Upaniṣad the ṚV-Śāntipāṭha (*"vāṅ me manasi"*, etc.), for Kena the SV-Śānti (*"āpyāyantu mamāṅgāni"*, etc.), for Kāṭhaka the Black YV-Śānti (*"saha nāvavatu"*, etc.) ; so that judging from this fact the first is annexed rightly to the ṚV, the second to the SV, and the third to the Black YV. Maṇḍala-brāhmaṇopaniṣad has for its Śāntipāṭha that of the white YV, viz.—*pūrṇam adaḥ pūrṇam idaṃ*, etc.; and as Maṇḍala-brāhmaṇa belongs to the white YV, it is clear that this Upaniṣad has been provided with the appropriate Śānti. But we not unfrequently meet with discrepancies in this sphere. We know from Sāyaṇa's quotation in his ṚV-comm. that Śāṭyāyana is a SV-brāhmaṇa ; but according to Muktikā, the Śāntipāṭha of the Śāṭyāyanīyopaniṣad is that of the White YV, to which this Upaniṣad is ascribed by the Comm. of Upaniṣad-brahma-yogin, too ; as a matter of fact, this Upaniṣad contains no SV-tradition, whereas the Maṇḍala-brāhmaṇopaniṣad mentions Yājñavalkya, one of the seers of its Veda. Sarasvatī-rahasyopaniṣad contains several stray ṚV verses, the name of Āśvalāyana as the speaker of the Upaniṣad and the opening verse of Daṇḍin's Kāvyādarśa.* According to Muktikā it is one of the 32 Black YV-Upaniṣads and its Śāntipāṭha is the Black Yajurvedic one. But the Niṛṇayasāgara-Press edition of the Upaniṣads in the list of Muktikā ascribes it to the ṚV associating the ṚV-Śānti with it. The authority on which this was done has not been revealed. As for the internal evidence of the Upaniṣad itself, we find a very faint trace of the ṚV-tradition in that the sage Śāṭyāyana has been invoked at the Tarpaṇa rite in the Śāṅkhāyana Gṛhya Sūtra, VI. 1. 1 ; this is inconclusive owing to the fact that teachers of various schools are solemnly prayed to on such occasions. But it seems plausible that some local tradition is drawn upon.

The above-mentioned Caraṇavyūha asserts that the three Upaniṣads viz. Mahā, Brahmavidyā and Prāṇāgnihotra belong to the Atharvaveda ; but Muktikā drags the first into the list of the 16 SV-Upaniṣads, and the other two into that of the Black YV-Upaniṣads, and attaches the Śāntipāṭhas in accordance with these Vedic schools.

We come finally to the Sāvitrī Upaniṣad. It is doubtless a late work on Gāyatrī and its archetype is the Gāyatrī-Upaniṣad embodied

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* चतुर्मुख-मुखाम्भोज-वनहंस-वधूर्मम ।
मानसे रमतां नित्यं सर्वशुक्ला सरस्वती ॥

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in the Gopatha Brāhmaṇa, I. 1. 31-38. 'Sāvitrī' and 'Gāyatrī' refer here to the same thing, and there is much affinity between these two in the Upaniṣadic portions. The Gāyatrī Upaniṣad of GB begins with the legend of an intellectual contest between the sages Maudgalya and Glāva Maitreya, "apparently an adherent of SV" whose name is met with in the SV literature, in course of which the latter is vanquished as he proves unable to explain "the *sāvitrī*, the *gāyatrī*, of 24 syllables, and 12 (cosmic) pairs, whose eye are the *bhṛgvaṅgirasaḥ*, on which all this is founded. Maudgalya then explains Savitar and *sāvitrī* as consisting of 12 cosmic pairs *(mithunam)*: mind and speech; Agni and earth; etc. Then follows a mystic correlation of the three pādas of the gāyatrī with three cosmic sets of twelve each, *pṛthivī, ṛc, agni*, etc., *antarikṣa, yajus, vāyu*, etc., each of which has the final outcome of *vrata*, religious devotion (cp. *vareṇya* in the text of the *Gāyatrī*). With characteristic inconsistency the AV. itself is ignored in this apportionment of the *gāyatrī*, though it has been assumed that the *bhṛgavaṅgirasaḥ* are its eye." (Atharva-Veda and Gopatha-Brāhmaṇa by M. Bloomfield, p. 110).

Many of these cosmic pairs look like a continuation of those mentioned in TS., III. 4. 7. 1-3, and VS., XVIII. 38-43; XXII. 28.

Now the Sāvitrī Upaniṣad of the later period essentially consists of the same subject-matter, namely, an attempt to answer the question *"Kaḥ savitā kā sāvitrī"* like its prototype by means of such pairs. They are nine in number and are not identical with the foregoing list. Only six are common to both. The language is strikingly similar in this part. Together with the three Vyāhṛtis the three pādas of Sāvitrī are correlated in the above manner. Then follow Aṅganyāsa and meditation on Sāvitrī by means of the two charms, Balā and Atibalā, which in the Rāmāyaṇa are transmitted by Viśvāmitra to Rāma and Lakṣmaṇa.* The text finds application in the overcoming of evils, including hunger. The Upaniṣad here bears an unmistakable Tāntrika stamp and declares itself at the end to be an Upaniṣad as does the Gāyatrī Upaniṣad of GB.

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* Balā and Atibalā are medicinal plants closely related to each other, so much so that Balā in the dual denotes both. They are mentioned by Suśruta. The names of the plants might have been transferred to the charms in question due to their potency. Viśvāmitra says to Rāma :—

मन्त्रग्रामं गृहाण त्वं बलामतिबलां तथा ॥ न श्रमो न ज्वरो वा ते न रूपस्य विपर्ययः । न च सुप्तं प्रमत्तं वा धर्षयिष्यन्ति नैर्ऋताः ॥ एतद्विद्याद्वये लब्धे न भवेत् सदृशस्तव । बला चातिबला चैव सर्वज्ञानस्य मातरौ ॥ क्षुत्पिपासे न ते राम भविष्येते नरोत्तम ।

Rām. I. 22, 17-8; cp. also Raghu, xi. 9.

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This Sāvitrī Upaniṣad is then avowedly an Atharvaṇic Upaniṣad in a modified form, and we are not asserting this on a mere agreement in names. The later authorities might have done the right thing had they been in a position to combine it with the group of the Atharvaṇic Upaniṣads. They have declared it to be a SV-upaniṣad and have announced its Śāntipāṭha as that of the SV-upaniṣads. So we find in the Muktikā, and the AV-upaniṣads (ed. BI) do not include it. Bloomfield has hit upon the real reason of confusion in classification when he says, "There was probably a greater break in time between *mantra* and *upaniṣad* in the AV. than in the other Vedas", so much so that the classifiers were often at a loss to know what to do. Furthermore, we know that the canonical authority was denied to the AV for a long period and as such the redactors of the Atharvaṇic literature in different ages laboured under an inferiority complex. It is not known why they have attributed it to the SV and not to any other Veda. Possibly the Brāhmaṇical account of the Sāmaveda's origination from Āditya (= Savitar, from which the word "Sāvitrī" is derived) was working in their mind and they were led to stamp it as a SV-upaniṣad. Thus they tried to raise the status of this AV-treatise. It is clear thus that the Śāntipāṭhas of the Upaniṣads of the different Vedas and recensions are not always a dependable criterion by which to determine affiliation to Vedic schools.

JAGADISH MITRA.

(3)

"METHOD OF FALSE ASSUMPTION" OF PACIOLI, AN ITALIAN MATHEMATICIAN

In 1922 I published a pamphlet entitled "Fundamental Methods in Arithmetic" in which I have discussed the theories underlying the arithmetical precepts from the 'Līlāvatī' of Bhāskarācārya, called by him Vyastavidhi and Iṣṭakāma respectively, and solved a number of problems by their means. Recently I learnt* that the credit for the latter method is given, probably unknowingly, by Western historians of mathematics to an Italian, named Pacioli, who was born about three centuries later than Bhāskara.

* A Short Account of the History of Mathematics, p. 209, (Rouse Ball, 1935).

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The principle concerned in that method is one of proportion, *viz.* that when an arithmetical problem can be reduced ultimately to the form—

$ax = b$ where x is unknown,

and by giving any assumed value to x, say x′, we get $ax' = c$,

then, $c : b :: x' : x$, or,

$$x = \frac{b \times x'}{c}$$

The following is the text from Līlāvatī—

इष्टकर्म प्रकरणम्

सूत्रम्—उद्देशकालापवदिष्टराशिः क्षुण्णो हृतोंऽशैरहितो युतो वा ॥

इष्टाहतं दृष्टमनेन भक्तं राशिर्भवेत्प्रोक्तमितीष्टकर्म ॥

Translation :—"The assumed answer, इष्टराशिः, should be multiplied (क्षुण्णः), divided (अंशैः हृतः), subtracted from (रहितः), or added to(युतोवा), as said by the problem-setter (उद्देशकालापवद्); we get the correct answer (राशि or x in the above question) when the दृष्टम्, (b in the equation) is multiplied by our assumed answer (इष्टाहतम्) and the product divided by the result c (अनेन भक्तम्) ।

This process is called "Iṣṭakarma."

Let us hope in future editions of Histories of Mathematics the credit for this method will be given where it is due.

A. S. Bhandarkar.

(4)

TIBETAN CONSONANTS COMPARED WITH ANCIENT CHINESE INITIALS.*

Prof. Lo Ch'ang-p'ei of the National university of Peking, China wrote two articles viz. "Notes on the Fragments of the Tun-Huang Manuscripts of Shou-wên" and "Tibetan and Chinese transcriptions of the Sanskrit Palatal Consonants", both in Chinese.[1] In these articles

* I am indebted to Mr. T. F. Chou of Calcutta University for his guidance in writing this small article.

1. Bulletin of the National Research Institute of History and Philology (BNRIHP) Academia Sinica, III, 2, 1931 ; Peiping. This journal is to be

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he gave Comparative Tables of Sanskrit and Tibetan Alphabets and ancient Chinese Initials. We rearrange the Comparison of Tibetan alphabet (700 A.D.) and Ancient chinese Initials (600 A.D.) in the following way :

Tibetan	Anct. Chinese I	II	III[2]	Tibetan	Anct. Chinese I	II	III
k	k	—	ky	p	p	—	py[5]
kh	kh	—	khy	ph	ph	—	phy
g	[h']	—	ghy	b	bh	—	bhy
ṅ	ṅ	—	ṅy	m	m	—	my
c[3]	(ts>)	tṣ	tśy	ts	ts	(<tṣ)	(<tśy)
ch	(tsh>)	tṣh	tśhy	tsh	tsh	(<tṣh)	(<tśhy)
j	(dzh>)	dẓh	dz'hy	dz	dzh	(<dẓh)	(<dz'hy)
ñ	(n>)	(ṅ >)	ñz'y	w	-w	—	—
t	t	ṭ[4]	—	z'	(z>)	—	z'y
th	th	ṭh	—	z	z	—	(<z'y)
d	dh	ḍh	—	h'	h'[6]	—	[ghy]
n	n	ṇ	—	y	-y	—	y
				r	—	—	—
				l		—	ly

found only at the Sino-Tibetan Seminar of the Calcutta University and the Cīnā-Bhavana Library, Śāntiniketan, in India.

2. I, II, III : These are so called divisions *(tₑṅ)* in chinese Phonology; See Y. R. Chao, "Distinctions in Ancient Chinese", Harvard Journal of Asiatic Studies, 1941.

3. c, ch, j : See Hans Nordewin von Koerber, Morphology of the Tibetan Language, Preliminary notes. p. XI.

4. ṭ, ṭh, ḍh, ṇ : Karlgren's t', t'h, d'h, ny, revised into ṭ, ṭh, ḍh, ṇ respectively by Prof. Lo ; see his article "The Pronounciation of Initials chih, ch'e, ch'eng, niang" (in chinese), BNRIHP, III, 1, 1931. Peiping. The late Prof. Ch'ien Hsüan-t'ung was also of the same opinion.

5. py, phy, bhy : These initials when meet with *-w*, become pyw >f ; phyw>f (f', according to Karlgren) & bhyw>v.

Profs. Lo and Ch'ien suggest that these may pass through an intermediate stage as :

pyw > pf >f,
phyw > p'f >f,
bhyw > bv > v.

6. Jäschke's Tibetan Grammar, Addenda by H. A. Franke and Walter

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Tibetan	Anct. Chinese I	II	III
ś	(s>)	ṣ	śy
s	s	(<ṣ	(<śy)
h	h	—	hy
a	.[7]	—	.y

In Ancient Chinese "*h*' exists only before the non-yodicizing finals and *gh*(-y) exclusively before the yodicizing finals." Karlgren supposes that *h*' came from archaic *gh* (without -y). See his Analytic Dictionary of Chinese and Sino-Japanese, introduction, pp. 21-22.

Tibetan people generally group thus :—

z', z, h', y ;
r, l, ś, s ;
h, a ;

But we may classify them as we have arranged in the above table, as follows :

z', z, h ;
y, r, l ;
ś, s, h, a ;

thus the correspondences :

Voiced z', : *voiceless* ś ;
,, z : ,, s ;
and ,, h' : ,, h.

PRABHAS CHANDRA MAJUMDER.

Simon, p. 106. "The pronounciation of ২ *'a-chuṅ, "the little a"*, is a voiced *h*, as in French là-haut. The same initial sound occurs in Chinese in the dialect of Shanghai, and is described by Karlgren in his "Etudes sur la phonologie chinoise (p. 293)" e.g. in Shanghai dialect h'a-ts' (shoes), h'a (< -p)-ts' (box).

7. This is a "glottal stop".

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(5)

THE SAṄGAM LITERATURE

The first few centuries of the Christian era which saw in the north specially in the Madhyadeśa the grouth of the Purāṇic literature were not altogether unproductive as regards the Southern parts of India, and we find the extreme south comprising the three countries of Cola, Pāṇḍya and Cera or Kerala, providing us with a class of literature conventionally called the 'Sangam Works', or works presented to the Sangam or a body of critics. These works written in the Tamil language allow glimpses into the cultural as well as the political life of its people, for, they are of a varied nature. Most of these works are in the form of anthologies and some have a religious interest but none of them is of a truly historical character.

The entire body of works which goes by the name of 'Sangam' has been conveniently divided into two classes—one which relates to the 'Field of action' and the other that deals with emotion[1]. The former kind, as can naturally be expected, has for its theme some specific event in the life of its hero, and the latter traces the career of its hero to some length and refers to his ancestors often. Thus the Neḍunal Vāḍai of Narkīkar which belongs to the former class celebrates a historical battle and the Manimekhalai belonging to the latter traces the love-career of its hero. The latter kind dealing with emotion generally centres round the love-episode of a hero, very often a royal person, and this is what enhances the importance of these works from the standpoint of history. But curiously even in these works the romantic element is blended with a religious. These works are neither of the character of exclusive religious texts devoid of all historical bearing nor of the type of romantic narratives like some of the 'Caritas' but are treatises where the story of love-adventure of historical and semi-historical figures end in an ultimate edification of some religious faith.

Divided chronologically the Sangam literature falls into three periods and are called the 1st Sangam, the 2nd and the 3rd. Belonging to the second division of the Sangam literature and falling in the last period which corresponds to the 2nd century of the Christian era are some of the works which have any important connection with the history of the extreme south, and Manimekhalai along with the Śilappadhikāram[2] stands out the most prominent among these.

1. S. K. Aiyangar—Beginnings of South Indian History—preface p. viii.
2. Also spelt 'Śilappadikāram' in "the Pāndyan Kingdom" by Nilakantha Sastri, p. 3-4.

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These two works which are contemporary not only to each other but also to the events they narrate, form together an epic, for, while the Śilappadhikāram gives the circumstances in which Manimekhalai was born and her early life, the Manimekhalai treats of the story of love between Manimekhalai and the heir-apparent to the Cola throne and the life of renunciation which the heroine ultimately adopted by embracing Buddhism. The two are epic poems in the sense that they treat their theme as a great event and have adopted an elevated style. But unlike the Rāmāyaṇa or the Mahābhārata the human element in epic character is not sacrificed to the love for ideals. Persons, at least the more historic ones, in these two poems are not presented at types but are allowed to appear in their true forms.

Although the two works are nowhere directly mentioned as falling within the Sangam literature their intimate connection with Senguṭṭuvan Sera as hero and with Sāttam as the author of Manimekhalai speaks well in favour of their being included within the Sangam literature, for as the former is both a patron and a hero of most Sangam works, the latter is known as one of the Sangam 49[3]. Though the author Iḷangō of the Śilappadhikāram is not himself a Sangam celebrity he is connected with Senguṭṭuvan as a younger brother and with Sattan as a close friend as he himself says in his work.[4]

All that is historically important in these works can be summarised as follows. The Cera or Kerala ruler Senguṭṭuvan whose date falls about 175 A.D.[5] fell in love with a girl of the Cola country, Manimekhalai by name. The love was however not ultimately successful inasmuch as the girl, bent as she was on a life of renunciation, succeeded at the end in embracing Buddhism. In course of his dealing with the hero the poet gives an account of his extensive empire and refers to an invasion of northern India undertaken by him. The poem also refers to the wars carried on by Senguṭṭuvan across the Ganges which are confirmed in another work, Padirrupattu.[6] His enemies like Iḷaṁ Kiḷḷi and Ori are mentioned specifically by name. The entire epic comprising the two poems connects itself with all the three capitals of Southern India. The story starts in the Śilappadhikāram from Puhār, the Cola capital and centres round Vanji, the capital of the hero Senguṭṭuvan, a Cera prince, as also in the Manimekhalai, although the Pandyan capital Madura also finds occasional mention in the latter poem.

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3. Manimekhalai in its Historical Setting—S. K. Aiyangar, p. 10.
4. Ibid, p. 9.
5. Historical Inscriptions of Southern India—Sewell & Aiyangar, p. 15.
6. Beginnings of South Indian History—S. K. Aiyangar, p. 218-9.

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Apart from the historical references, the two poems in style and subject-matter reveal a character which is quite opposed to the spirit of the historian. In the first place, a triumph for Buddhism as a religious faith is the objective of the poet to demonstrate to his readers. He has taken every care to so mould his narrative by bringing in the elements of the supernatural[7] not only in external objects but even in the movement of his heroine as to conduce ultimately to the attainment of that object. Secondly, his narrative in its main theme seeks to trace the love-career of the hero whose political existence, though by no means ignored, is made subservient to the account of his private life. It is true that there is a historical background for these two poems or for the matter of that for all the works included under Sangam literature, for they sing the praises of their heroes, mostly historical figures, like Karikāla and Senguṭṭuvan,[8] belonging to one or the other of the three political principalities of the South. It is also true that like panegyrists of the north the auhor does not suppress the names of the adversaries of his hero and that there is not present the effort to make an ideal of his hero by heaping hyperboles on him. But these prove nothing beyond the fact that the works were neither of the type of the Sanskrit Praśastis nor do they trace the history, however little, with any special zeal for it. They are, in fact, a class by themselves whose historical data can with caution be utilized but are presented not in such a manner as to deserve the name of historical literature.

It is interesting to note in this connection that South India also possessed some Purāṇic works both in Tamil and his Sanskrit. Thus the Tiruviḷayāḍal is a typical traditional Purāṇa in Tamil and the Sanskrit Sthalapurāṇa, though a late production of the tenth century following the model of its kindred literature in the north, gives a genealogical list of about 73 kings belonging to the extreme South.[9]

ASOKE KUMAR BHATTACHARYYA.

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7. Manimekhalai in its Historical Setting—S. K. Aiyangar, p. 24-5.

8. The date of Karikāla falls about the middle of the 2nd century of the Christian era and that of Senguṭṭuvan about the 3rd quarter of the same. Vide, Historical Inscriptions of Southern India—Sewell & Aiyangar, p. 14-5.

9. The Pandyan Kingdom—Nilakantha Sastri, p. 3.

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(6)

GOVINDĀNANDA'S REFUTATION OF ŚRĪDATTA'S VIEWS.

We have discussed elsewhere Govindānanda's indebtedness to the Agastyasaṁhitā[1] and to Caṇḍeśvara[2]. In the former paper we have identified the quotations from the Agastyasaṁhitā in two works of Govindānanda, viz. the Varṣakriyākaumudī[3] and Śuddhikaumudī[4]. In the latter paper while identifying quotations from the Śuddhiratnākara of Caṇḍeśvara in the Śuddhitattva of Raghunandana, we have referred to the paucity of Govindānanda's quotations from the works of Caṇḍeśvara. Now we are going to discuss Govindānanda's indebtedness to another digest-writer of Mithilā, viz. Śrīdatta, who flourished shortly before Caṇḍeśvara.

Mr. (now Mahāmahopādhyāya) P. V. Kane says on p. 365 of his *History of Dharmaśāstra*, vol. I., that 'Śrīdatta is more frequently quoted in the Śrāddhakriyākaumudī of Govindānanda than almost any other author or work'. From a glance at the Index (pp. 14-15) to the Śrāddhakriyākaumudī[5] we find 29 entries against Śrīdatta. Now as Govindānanda names no work of Śrīdatta in his above work, so the relevant works from which Śrīdatta's views are quoted by him must be the Pitṛbhakti and Śrāddhakalpa, two manuals on the śrāddha rites for the students of the Yajurveda and Sāmaveda respectively,[6] as the subject-matter of the three works, viz. the Śrāddha-kriyākaumudī, Pitṛbhakti and Śrāddhakalpa, is the same, viz. śrāddha.

Neither the Pitṛbhakti nor the Śrāddhakalpa of Śrīdatta has been printed. There is a MS. of the former in the Deccan College collection (No. 152 of 1892-95), while the existence of the latter can be inferred from its mention in the former and in the Samayapradīpa, another work of Śrīdatta (D. C. MS. No. 371 of 1875-76). Before proceeding to identify the quotations from Śrīdatta in the Śrāddha-kriyākaumudī of Govindānanda, I wish to make a short remark. Mahāmahopādhyāya Kane says in his section on Śrīdatta Upādhyāya, 'Another work of his is the Chandogāhnika on the daily duties for Sāmavedins. He refers to it in his Samayapradīpa[871] and Pitṛbhakti.'[7]. And then in f.n. 871

1. J. B. O. R. S., Vol. XXII (1936) pp. 111-115.
2. Ibid, Vol. XXIII (1937) pp. 138-142 at p. 142.
3. Edited by MM. Kamalakṛṣṇa Smṛtitirtha, B. I., 1902.
4. Edited by the same, B. I., 1905.
5. Edited by the same, B. I., 1904.
6. *History of Dharmaśāstra*, Vol.I. (1930), p. 364.
7. *History of Dharmaśāstra*, Vol. I., p. 364.

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he writes, ' "uktam-asmābhir-āhnike' folio 53a of Samayapradīpa D.C. MS. No. 371 of 1875-76 ; 'na ca sapatnīkānāmiti prapañcitam-asmābhiś-chandogaśrāddhakalpe' Pitṛbhakti folio 24a." But the work Chandoga-śrāddhakalpa is not the Chandogāhnika but the Śrāddhakalpa for the Chandogas, i.e. Sāmavedins. As no MS. of the Śrāddhakalpa is available, I have tried to identify the quotations in the Śrāddhakriyākaumudī from Śrīdatta in the MS. of the Pitṛbhakti only and have succeeded in tracing seven only out of the twenty-nine. A noticeable feature of these twenty-nine quotations is that they are mostly, with some exceptions, refutations of the views of Śrīdatta by Govindānanda, unlike those in the works of Caṇḍeśvara[8] and Raghunandana who have almost always accepted Śrīdatta's views.

Of the seven identified quotations from the P.B. (see Appendix) the first is on p. 85 of the S. K. K. and is to the effect that the mention of *adya* (to-day) as recommended by Śrīdatta is also done away with. This quotation occurs in the topic of the śrāddha-pūrva-dina-kṛtya (i.e. duties to be performed on the day previous to the day of śrāddha) of the S. K. K. and formulae of inviting Brāhmaṇas for several śrāddhas are found on folio 36 of the P. B., with the word *adya* inserted in their beginnings. The second quotation is on p. 137 of the S. K. K. and is to the effect that Śrīdatta and others have read *saṁsravaṇādica* for *saṁsravamāditaḥ* in a text of the Matsyapurāṇa, cited just above, have explained the word *ādi* as referring to the sesame, flowers and pavitra stalks remaining in the vessel of articles of worship and have opined that the *nyubja* is to be performed after placing the pavitra-stalks in the vessel of the manes. Govindānanda disapproves of this view on the authority of Pāraskara, Gobhila and Yājñavalkya and the established usage of all places. The reading *saṁsravaṇādi (ca* being omitted through copyist's error) in the text of the Matsyapurāṇa, the interpretation of the word *ādi* and the decision to perform the *nyubja* in the prescribed manner are all found on folio 25a of the P.B. The third quotation is on p. 138 of the S.K.K. and is to the effect that on the authority of the Mahābhārata interpreting the word *uttara* as *vāma*, the pavitra stalks are to be placed on the leftside of the Brāhmaṇas according to Halāyudha, Śrīdatta and the author of the Śrāddhapradīpa. This interpretation is found on folio 25b of the P. B. and the opinion of Halāyudha's Śrāddhādhyāya is appended just after it. The fourth quotation is on p. 179 of the S. K. K. and is to the effect that the view of the moderner who follows Śrīdatta and finds fault with ancient usage and recommends the muttering of the *madhuvātā* verses again for three times, is not found in all the

8. Vide my paper on 'Caṇḍeśvara's indebtedness to Śrīdatta', to be shortly published in the N. I. A,

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recensions of Gobhila, is not approved of by Bhaṭṭabhāṣya and others and is to be laughed at and rejected. This assailed reading of Gobhila is found on folio 15a of the P. B. The fifth quotation is on p. 185 of the S. K. K. and is to the effect that the view of Śrīdatta that the word *kuśān* is to be interpreted as three Kuśas by the maxim of *Kapiñjalādhikaraṇa*, is to be disapproved. This interpretation of the word *kuśān* as *kuśatrayam* (three kuśas) is found on folio 15b of the P.B. The sixth quotation is on p. 310 of the S. K. K. and is to the effect that Śrīdatta reads *pitrāditrayapatnīstu* in place of *pitrāditrayapatnīṣu* in the text of Śaṅkha, cited just above. The reading *pitrāditrayapatnīstu*, attributed to Śrīdatta, is found on folio 33a of the P.B., with the words *iti Śaṅkhavacanācca*, added just after the verse containing it. The seventh quotation is on p. 474 of the S. K. K. and is to the effect that the interpretation of Pārijāta, Ratnākara, Śrīdatta and others of the sentence 'tasyoktaḥ pārvaṇo vidhiḥ', occurring in a text of Śaṅkha, consisting of two verses, is not approved of by Govindānanda. The interpretation consists in the restriction of the pārvaṇa śrāddha to that person only on whose death anniversary the pārvaṇa is being performed, owing to the singular number of the word 'tasya', occurring in the text of Śaṅkha, quoted above. The verses of Śaṅkha and the interpretation of Śrīdatta are found on folios 36b and 37a respectively of the P.B.

Abbreviations.

S. K. K. = Śrāddhakriyākaumudī
P. B. = Pitṛbhakti
B. I. = Bibliotheca Indica, Calcutta.
N. I. A. = New Indian Antiquary, Bombay.

Appendix of the Quotations.

1. अतएव श्रीदत्तलिखितोऽद्यप्रयोगोऽपि निरस्तः।

2. श्रोदत्तादयस्तु संस्रवणादि चेति पठित्वा आदिपदेनार्घपात्रावशिष्टानां तिलपुष्पपवित्राणां ग्रहणमिति व्याख्याय पवित्राणि पितृपात्रे स्थापयित्वा न्युब्जं कार्यमित्याहुः। तन्मन्दम्।

3. महाभारते उत्तरशब्दस्य वामार्थत्वदर्शनात् ब्राह्मणानां वामपार्श्वे इति हलायुधश्रीदत्त-श्राद्धप्रदीपकाराः।

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4. यच्च श्रीदत्तमतानुसारिणा प्राचीनाचारदूषण-ग्रहिलेन पारस्करसूत्रतुल्यमग्नि-दग्धाश्चेत्यनन्तरं पुनर्माधुवाता मध्विति च त्रिर्जप्त्वा गोभिलसूत्रं धर्मलोपाय लोकद्वयविरुद्धमाधुनिकेन कल्पितं तत् सर्वदेशीयगोभिलपुस्तकेष्वदृष्टत्वात् भट्टभाष्या-दीनामसम्मतत्वाच्चोपहसणीयमेव ।

5. अत्र कपिञ्जलाधिकरणन्यायेन कुशांस्त्रींस्त्रीनिति श्रीदत्तः । तन्मन्दम् ।

6. पित्रादित्रयपत्नीस्त्विति श्रीदत्तकृतः पाठः ।

7. अत्र पारिजात-रत्नाकर-श्रीदत्तादयः-तस्योक्तः पार्वणो विधिरिति तस्यैत्येक-वचनाद्यस्य मृताहस्तस्यैव पार्वणविधानातिदेशात् पितामहप्रपितामहश्राद्धस्य च प्रधानस्यानतिदेशादैकपुरुषिकमेव पार्वणमिति वदन्ति । तन्मन्दम् ।

BHABATOSH BHATTACHARYA.

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REVIEWS

VIDYĀPATI'S *PADĀVALĪ*, edited by (the late) Amulya Charan Vidyābhūṣaṇa and Prof. Khagendra Nath Mitra ; printed at the Śrī Bhāratī Press, Calcutta, 1348 B. S.

The volume under review constitutes the second edition of the *Padāvalī* (Collection of Vaiṣṇavite Songs) of Vidyāpati, which was first published under the auspices of the Vaṅgīya Sāhitya Pariṣad in 1316 B.S., being edited by (the late) Mr. Nagendra Nath Gupta. The first edition of the publication having been exhausted many years ago, a second edition had been for long a desideratum to all those who are interested in *Padāvalī* literature. Nevertheless, the preparation of the new edition was undertaken by no less a scholar than Paṇḍit Amulya Charan Vidyābhūṣaṇa, who incorporated into it 135 additional *padas* making an aggregate of 1070 *padas* or songs. With a different method of collocation of the *padas* from what was adopted in the first edition by Mr. Gupta, Paṇḍit Amulya Charan published them in 1341 B.S., together with an Introduction, and subsequently wrote explanatory notes on 310 *padas* when he fell seriously ill. After this the task of bringing the edition to completion eventually devolved upon Professor Khagendra Nath Mitra. The present volume thus contains a Preface by Professor Mitra, the Introduction by Paṇḍit Amulya Charan, the Introduction of the first edition by Mr. Gupta, the text of 1070 *padas*, notes, and a comprehensive glossary of important words.

It is extremely difficult to determine at present how many of these 1070 *padas* attributed to the Vidyāpati of Mithila, who, as we now know definitely, dates from the first half of the 15th century, are genuine, but Professor Mitra has done his part of the work admirably well in elucidating as many as 760 *padas*. The language used in these *padas* is neither Maithili nor exactly the so-called Vrajabuli of later days, but a curious mixture of Maithili, Bengali and Hindi, styled as Avahaṭhṭho, and to bring out the correct sense and precise signification of these *padas* is neither a simple nor an easy enterprise. It is, however, gratifying to note that Professor Mitra, whose vast erudition in *Padāvalī* literature is widely known, has enormously succeeded in giving us a faithful rendring of the language and spirit of the original songs into Bengali prose by way of running annotations.

In his Preface, too, Professor Mitra has made several thoughtful suggestions regarding the language of Vidyāpati, the circulation of his *padas* in Bengal, his personal religious faith, and so on. We may perfectly agree with him when he wants to say that Vidyāpati himself paved, by his adoption of the mixed language, the way of popularising his *padas* in Bengal where the current of the Rādhā-Kṛṣṇa cult had been strong (while Mithilā was *par excellence* a land of Śaivism).

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Whatever might have been the religious denomination of the poet, there can be no doubt that he composed the *padas* in the spirit of a devout Vaiṣṇava, and they were destined to be acclaimed by the members of the Gauḍīya school of Vaiṣṇavism as pieces of writing no less sacred than the *Gīta-govinda* of Jayadeva.

Professor Mitra has the gift to avoid, as far a practicable, indulging in dogmatisms, and deserves heartfelt congratulations on utilizing his peerless scholarship in the *Padāvalī* literature in this volume, which is sure of a warm welcome by all workers in the field. The printing of the book is neat and the get-up dainty.

NALINI NATH DAS GUPTA.

KĀLASIDDHĀNTADARŚINĪ [A Treatise on the Indian Philosophical views on Time]—by Pandit Haran Chandra Bhattacharaya, Lecturer, Govt. Sanskrit College; formerly Assistant Professor, Govt. Sanskrit College, Benares. With a foreword (pp. 10) by Mahāmahopādhyāya Pandit Gopinath Kaviraj, M.A., formerly Principal, Govt. Sanskrit College, Benares & Superintendent of Sanskrit College, United Provinces. Published by the author, 1941 from 65-5B, Bagbazar Street, Calcutta, pp. 10+110.

The author deserves to be highly congratulated on his compilation of this very interesting and learned work. Pandit Haran Chandra Bhattacharya has wide celebrity for his erudition and versatility in the realm of Sanskrit Grammar and Philosophy. It is very gratifying that he has presented to the world of Sanskrit scholarship a clear and lucid exposition of the different views of the various schools of Indian Philosophy and Religion, on Kāla or Time. The foreword added to this volume by Mahāmahopādhyāya Pandit Gopinath Kaviraj has shed new light upon the philosophical issues involved.

"A careful study of the history of philosophical doctrines in this country," says MM. Pandit Gopinath Kaviraj in his foreword, "would reveal the fact that thinkers have had apparently divergent conceptions of Kāla from the earliest times." There was indeed a distinct school of thought which developed in ancient India a theory known as Kālavāda. Dr. Schrader in his well-known work on Indian philosophical speculations prior to and during the days of Buddha Gautama and Mahāvīra supplied some valuable data on this doctrine. *Kālavāda* establishes *Kāla* as the ultimate paramount power, the fundamental cause of all movements of life and thought—a supreme Power in itself, whether you take it as conscious, insentient or blind or identify it with something like the western conception of Fate. The *Kālasūkta* of the Atharvaveda (XIX. 6. 8-9), which invokes Kāla as the sole supreme power, appears to indicate the germ of the notion. The

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Mahābhārata, we are informed by MM. Pandit Kaviraj, represents different versions on this doctrine in different contexts of the Śāntiparvan. Pandit Bhattacharya referring to the *Kālasūkta* of the Atharvaveda has held on the authority versions of this doctrine in different contexts of the Śāntiparvan. Pandit Bhatta- *Kāla.*

The author has very ably compiled some fifty different views about Kāla paying due regard to all the various schools of interpretation. The sources of his information comprise some 172 different treatises including glosses and commentaries. The treatment has been fully anthenticated by references.

Some of the interesting views as compiled in the present work are indicated below. Kāla from the standpoint of the Ṛgveda and the Atharvaveda is viewed as the ultimate principle of the cosmic process, while it is conceived by the Upaniṣads as emanating from Brahman, the Absolute Reality, and as such subordinate to the later. The doctrine of Kālakāraṇika, on the other hand, goes so far as to deny the existence of God in establishing the supremacy of Kāla. The Nyāya, Vaiśeṣika and the Mīmāṁsā schools of philosophy formulate Kāla as a static principle, eternal and ubiquitous in character. The interpreters of the Advaita Vedānta espouse different views : some identifying Kāla with Avidyā, while others recognising it as *Kriyāśakti* of the Absolute Reality. The ancient school of Sāṅkhya admits it merely as *guṇapariṇāma* (evolution of Nature), while other thinkers of the school understand it as the source of Nature's dynamism. The Yoga philosophy propounds Kāla as merely the notion of temporal succession. In short, all these different views have been treated in the present book in a systematic form.

Pandit Bhattacharya has also dwelt upon the conceptions of Kāla as explained in different religious systems, for example, Vaiṣṇavism, Śaivism, Śaktiism, Pāśupatism, Buddhism, Jainism and so forth. Even the views of Lokāyata, Grammar, Jyotiṣa, Āyurveda and Kāmaśāstra have not escaped his attention. All this indicates author's width and depth of vision and the amount of labour he has devoted to the work. Its value would have been further enhanced if the author had tried to establish some sort of chronology in the evolution of Kālavāda.

KRISHNAGOPAL GOSWAMI.

A LOWER LADAKHI VERSION OF THE KESAR SAGA; Tibetan text; English abstract of contents; notes and vocabularies; and appendices by A. H. Francke, Ph.D., introduction by Suniti Kumar Chatterji, M.A. (Calcutta). D.Lit. (London), F.R.A.S.B.; Bibliotheca Indica, Work No. 168; pp. xxxii+493; Calcutta 1905-41.

This is an omnibus volume containing much material concerning the Kesar Saga which is the only known hero-epic of the Mongolian peoples. The Lada-

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khi version of the saga which forms the main text of the present volume is rightly considered to be the oldest version known, for it breathes the spirit of the pre-Buddhist Bon religion of Tibet ; all other versions on the other hand, as stated by Prof. Chatterji in his Introduction, are more or less Buddhicised. It is reasonable to conclude, therefore, though the text of the saga had never been fixed in writing until in the last century by European ethnologists, that it gives us yet a picture of the Mongolian racial epic, not exactly in its pristine purity perhaps, but at least in one of its oldest forms. Professor Sylvain Lévi called the Kesar saga "the Iliad of central Asia". Professor Chatterji would go one step further and call it the Odyssey also. In any case, the Kesar saga has all the features of a great epic. When doing my own little bit of the present work I was deeply impressed by the vigour and beauty of this primitive classic : primitive on account of the rude horse-play that abounds throughout, but classical by reason of its calm and unforced synthesis of the elemental forces in man and nature. The lyrical element too is not wanting, particularly in the songs.—Is there any historical basis to the Kesar saga, or is it purely a nature-myth ? Prof. Chatterji has left the question open. To me it seems however that all indications speak for a real historical back-ground. Chadwick has eloquently and convincingly argued that nature-myths develop into fables, not into sagas. To impregnate the fleeting moment with the spirit of the eternal,—this is the function of the epic poet ; but a fable—proceeding from whatever heights it may be—trickles down in a feeble stream and degenerates at the end into a listless lullaby. Unless enshrined in religious superstition, a nature-myth cannot live long, but an epic saga starting from an event of national history is continually rejuvenated from age to age and place to place till at last in the maze of shoots and branches the original trunk gets completely lost. This is apparently what has happened to the Kesar saga. It is therefore difficult to imagine that the Mongolian hero-epic, with its amazing vitality, was in origin merely a nature-myth. Analogy too speaks for a historical basis. Germanic epics know definite historical persons, such as Attila the Hun ; the Servian epic grew up round the battle of Kossovo against the Turks ; the Arthurian legends of the Celts are but the history of the Germanic conquest of Britain in poetic garb ; some Greek scholars have pushed their scepticism so far as to assert that the battles of the Trojan war recorded in the Iliad actually took place in Greece and not before the walls of Troy, but even then they do not deny that a battle or battles actually took place in which the Greek tribes participated. Regarding our own epics. I hope nobody will dare to say at this time of day that they are mere imaginings. The Kesar saga, with its unmistakable epic features, belongs to this august company ; the benefit of doubt should therefore be conferred on the side of its historical origin.

The history of this publication is as picturesque as the saga itself. The publication was begun in 1905 by A. H. Francke, a Moravain Missionary in Ladakh, who got versions of the saga written down for the first time. But Francke died and the Asiatic Society too fell into a state of quiescence. After

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the reorganisation of the Society the new secretary Dr. B. S. Guha suggested to Prof. Chatterji to take up the work who at once agreed and finished the job soon with his characteristic thoroughness.—Apart from the Tibetan text and English translation of the Saga, six articles on it already published by Dr. Francke have been reprinted in this volume as appendices, for they have all become rare.

BATAKRISHNA GHOSH.

INDO-ARYAN AND HINDI—Eight Lectures on the history of the Aryan speech in India and on the development of Hindi (Hindusthani) delivered before the Research and Post-Graduate Department of the Gujarat Vernacular Society in 1940, by Suniti Kumar Chatterji M.A. (Calcutta), D. Lit. (London), F.R.A.S.B., Khaira Professor of Indian Linguistics & Phonetics, University of Calcutta ; pp. xiii+258.

Hindi will be, and to a large extent already is, the national language of India. So the Gujarat Vernacular Society has rendered a great service to India by inviting Professor Suniti Kumar Chatterji to explain in eight lectures the origin and development of Hindi and the position it holds to-day in Indian social life. These lectures were meant for the general public and therefore the book does not deal with Hindi in the same exhaustive manner as Professor Chatterji's famous book on Bengali does with that language. Yet there will be hardly anyone even among those who have specialised in linguistic studies who can say after reading the book that he has not learnt much from it.—The book is divided into two parts of four lectures each. The evolution of Aryan speech from its Indo-European origin has been traced in the first part, and the development of Hindi—the New Indo-Aryan 'Lingua Franca'—in the second. Non-Aryan languages like those of Austric, Dravidian and other groups have also been mentioned and their chief characteristics pointed out, but of course no detailed treatment of these languages was possible. Successive stages in the evolution of Indo-Aryan speech however have been fully and beautifully explained. To make the book humane and attractive Prof. Chatterji has almost on every page made brilliant digressions into vital problems of Indian history and culture. Altogether the book gives the impression that Prof. Chatterji is speaking to us not from a scholar's ivory tower, but as a man stirred to the depth of his soul by the present realities of Indian social life.

I am glad to see that Prof. Chatterji (p. 27) has definitely connected the Vedic Asuras with Assyria. In my own writings I expressed the same view more than once before. Most European scholars however have been very sceptical on

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this point, without adequate reason in my opinion. There is ample reason to believe that the Asura-element in Vedic culture as reflected in the Saṁhitās and the Brāhmaṇas—there are hundreds of passages specially in the Brāhmaṇas clearly suggesting a distinct but by no means inferior culture of the Asuras—is chiefly the legacy of the destroyed Mohenjo-daro culture ultimately derived from Assyria. Elucidation of much of ancient Indian history depends on the solution of this Asura-problem.—Prof. Chatterji seems to have given unqualified support (p. 51) to the very daring theory launched by Mr. Harit Krishna Deb that some of the "Peoples of the Sea" defeated by Ramses III of Egypt in 1198 B.C. were actually Vedic tribes. But I don't see at all how the *Akaywaša* can be identified with the *Yakṣus,* and the *Śakarša* with the *Śigrus.* The *Akaywaša* were undoubtedly the Akhaians, but we must remain at that. The Turša were the forefathers of the Etruscans and the Vašaša probably hailed from Oaxos in Crete (see Hall, Bronze Age Greece, p. 241) : there is, so far as I can see, nothing to show that they had anything to do with the Vedic Turvaśas.—Regarding New Indo-Aryan dialects Prof. Chatterji says : "Genuine NIA. was but an attenuated language, hardly able to shift for itself as it were. The mother was ever ready to supply the child with nourishment, and NIA. began to replenish her stock of words with the abundance of Sanskrit" (p. 126). These words should always be remembered to-day when impelled by the vulgar craze for modernity we are systematically destroying our ancient cultural heritage.—In the second part, after giving a rapid survey of the origin and development of Hindi Prof. Chatterji has put in a strong plea for basic Hindi in Roman script as the national language of India.—Considering the nature of the book, typographical errors and inconsistencies are few, and for those few the present reviewer is partly responsible.

BATAKRISHNA GHOSH.

PŪṢAN IN THE RIG-VEDA by Samuel D. Atkins ; a Dissertation presented to the Faculty of Princeton University in Candidacy for the Degree of Doctor of Philosophy [of the Princeton University] ; pp. xiii+102 ; Princeton 1941.

Siecke published a whole monograph on Pūṣan in 1915, and almost every Vedic scholar of repute has written something on this god. It was therefore an act of no common courage on the part of Dr. Atkins to write a fresh dissertation on this god offering new interpretations. He has not only successfully done that but also got his thesis approved by a famous University. Author's method is rather original in that in the first part (pp. 1-29) he gives his conclusion and the broad lines of thought leading to it, reserving the detailed analysis of the relevant passages for the second part (pp. 30-97). Otherwise how-

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ever the author has followed the usual method which, in my opinion, can be much improved upon. The usual method is to trace almost every Ṛgvedic deity back to *one* natural phenomenon, but that *one* natural phenomenon is hardly ever the same in the interpretations put upon the god by different investigators. What should the poor student do when the very greatest Vedic scholars—Oldenberg, Hillebrandt, Bergaigne, Keith for instance—starting from the same data arrive at quite different natural phenomena? All of them could not have been right, and who has the courage to say that anyone of them is wholly wrong? The cause of this discouraging difference among the authorities is the general unsoundnessof the prevailing notion about Vedic gods. The fact is that the Vedic gods are not yet finished and unified personalities—they are congeries of characteristics but as yet no characters at all. And that is as it should be, for none of the natural phenomena could *alone* produce the complex character of an anthropomorphic deity. Even apart from the purely noumenal forces there must have been several—and not one—phenomenal factors contributing to the make-up of such a god. Every Ṛgvedic god—including the concretest and the most clear-cut ones—is the result of the syncretism of various forces. It is not enough to say of the Vedic gods merely that they are cases of arrested anthropomorphism; it is necessary to add further that the inspired imagination which constructed the divine personalities was in each case moved by a complex of stimuli derived from *different* sources. Only under such a hypothesis is it possible to give a rational interpretation of the Vedic gods. Dr. Atkins has unravelled Pūṣan into a solar god, a pastoral god, a god of paths, and a god of wealth and benevolence, and then tried to show how he gradually grew from the first phase to the last. Such an idea of logical evolution, in course of which every phase of the god's character at a certain point excludes all the others, cannot but be wrong. There is nothing in the Ṛgveda to show that the Ṛṣis ever had conceived Pūṣan—or any god for that matter—as a clear-cut and exclusive personality. It is much more rational to assume that Pūṣan was all the time all these gods—solar, pastoral etc.—, and therefore had never any definite character but only characteristics.—In the translation portion the author has everywhere shown sound judgment and modestly followed the masters of Vedic interpretation he has carefully studied. The two most striking epithets of Pūṣan—*mātúr didhiṣúḥ* and *svásur jāráḥ* (RV. VI. 56. 5)—have been mentioned (p. 66) but not explained; herein is concealed much mythological matter concerning Pūṣan, but that will perhaps never be discovered.

BATAKRISHNA GHOSH.

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POONA EDITION OF THE ṚGVEDA with Sāyaṇa's Commentary, vols. I-III.

Mahārāṣṭra is leading India almost in every field of antiquarian research. Names like "Tilak", "Bhandarkar", "Sukthankar" connote definite landmarks in the history of India's cultural regeneration. In the last century, it is true, Bengal shone forth for some decades in the reflected glory of European culture, but now it is abundantly clear that all that glitter was not of gold. But for the titanic achievements of Sir Ashutosh Mookerji the Bengalees would have been to day a race of spineless sycophants speaking Pidgin-English as their mother-tongue. Mahārāṣṭra however was never threatened by such ominous danger of cultural annihilation. It is in the fitness of things, therefore, that Mahārāṣṭra should take the lead in all cultural movements—which, to be true to term, have to be based on ancient traditions. The two great repositories of Hindu cultural tradition are the Ṛgveda and the Mahābhārata, both of which the Mahārāṣṭrians have undertaken to retrieve from neglect and present to the enlightened public of India in model editions. The special feature of the Poona edition is that it gives us not only the text of the Ṛgveda with the Padapāṭha but also the Commentary of Sāyaṇa. The question will certainly be raised in many quarters, is it worthwhile to reprint the commentary? Did not Max Müller himself sort of ignore Sāyaṇa in his translations and interpretations of the Ṛgveda, and was he not for decades the target for criticism and ridicule from and others for the foolish act of publishing *in toto* the CommentaryWhitney of Sāyaṇa? My answer to this question after nearly twenty years of almost incessant *Beschäftigung* with the Ṛgveda is that it is worthwhile. But we must take Sāyaṇa's commentary in the same spirit in which the great commentator himself took it. Much praise and abuse has been thoughtlessly showered on the head of Sāyaṇa by students and scholars who never tried to understand Sāyaṇa's point of view. So far as the crucial words and passages of the Ṛgveda are concerned Sāyaṇa's intention was consistently to suggest a meaning which is *possible ;* modern interpreters in such cases try to establish a meaning which is *probable ;* naïve ignorance however invariably hits on the meaning which is absolutely *certain.* If we remember this—and this should become crystal clear to every careful student—then Sāyaṇa's commentary no longer requires any justification.—There is another consideration for which, too, Sāyaṇa's commentary should be indispensable to us. No word is pronounced twice in exactly the same sense even by the same person. How much then should the words have changed their meanings since the age of the Ṛveda? Words get their content of meaning from the social background. But can we form in our minds anything like a true picture of the Ṛgvedic society? Obviously not. Yet the tradition enshrined in Sāyaṇa's commentary reveals to us in many cases the association of ideas within the circle of which the meaning of particular words and phrases was originally confined. Herein lies the greatest value of Sāyaṇa's commentary. The meanings of particular words given by Sāyaṇa cannot be accepted without scrutiny and criticism, but the cultural setting

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without which words are hardly anything more than empty sounds is supplied only by Sāyaṇa and his compeers. There are of course many little errors also in this regard in Sāyaṇa's commentary as has been fully established by modern research. But a veritable catastrophic error would be committed if Sāyaṇa is ignored on that account. The Vaidik Samshodhan Mandal of Poona has therefore rendered a very great service by making Sāyaṇa's commentary available to us in such an excellent edition. It is to be hoped that the fourth volume (Maṇḍalas IX and X) will be soon out.

BATAKRISHNA GHOSH.

THE ART OF WAR IN ANCIENT INDIA by P. C. Chakravarti; Thesis approved for the Degree of Doctor of Philosophy in the University of London; published by the University of Dacca, Bulletion No. xxi; pp. xiv+212; Dacca 1941.

To quote the author, "strictly speaking, this is not a pioneer work [for] others have laboured in the same field, the most notable among them being E. W. Hopkins, H. C. Ray and G. T. Date." Such modesty naturally raises the expectation that the author's work would be a sound one, and it is really so. Dr. Chakravarti has given us an immensely readable book dealing pretty exhaustively with an aspect of social life in Ancient India which has not yet received the deserved amount of scholary attention. In one respect Dr. Chakravarti's book is distinctly above the usual run of doctoral dissertations: not content with mere fact-finding the author has tried (specially in his last chapter) also to explain those facts from a particular point of view—a hypothesis. Facts alone can never be more than material for history; they become history only when subsumed under a consistent theory. Objective history is a contradiction in terms. Something extra is needed to transform isolated and unrelated facts into history, and that is hypothesis which cannot but be subjective. This applies also to science and philosophy. Hypothesis is indispensable to every scientific work, because science by definition presupposes hypothesis, but hypothesis in its turn is by definition subjective and therefore can never be wholly true. There is no escape from this dilemma, unless we seek refuge in transcendental philosophies. Dr. Chakravarti's chief hypothesis regarding Indian military science is that "the creative power of antiquity in certain spheres of speculation and achievement was exhausted" (p. 196). This is however definitely contradicted by the passage from Megasthenes quoted on the same page to the effect that it was "even accounted vicious to carry their study far, the art of war, for instance." Does it not suggest

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that Ancient India did not recognise war as a worthy subject of study? Let us frankly admit that Ancient India failed to produce a soldier like Alexander or Napoleon, just as Europe failed to produce an emperor like Aśoka who renounced war after a *victory*. But why should we expect India to produce an Alexander or a Napoleon? Such men would have been misfits in Indian civilisation, specially after the rise of Buddhism and Vaiṣṇavism. In Indian context the non-emergence of military genius need not have been due to degeneration as Dr. Chakravarti seems to hold; it was due rather to the peculiar genius of the Indian people, which, moreover, never allowed brute facts to wholly determine the ideal in any field of life. The scanty military literature of India cannot be expected to reflect the real state of things, for, as in every other matter, here too, the Brahmin writers were chiefly concerned to evolve by induction an *ideal*. But Dr. Chakravarti does not depend solely on the speculative writings of Brahmin theorists. He has drawn largely on genuine historical documents and thus arrived at many interesting results. He has established that war-chariots disappeared from Indian military system in the eighth century A.D. (p. 26), that cavalry never formed the core of a Hindu army (p. 36), that it is utterly wrong to think that the military profession was the exclusive monopoly of the Kṣatriya caste (p. 78) etc. etc. By the way, Mallinātha on Raghu. VII. 44 says *"mūrchitānām anyatra nītvā saṁrakṣaṇaṁ sārathidharmaḥ."* Is there any ancient authority for this convention?

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IMPORTANT CONTRIBUTIONS TO ORIENTAL JOURNALS

Annals of the Bhandarkar Oriental Research Institute, Vol. XXII, Parts III-IV, 1942.

Excavations at Kondapur, an Andhra Town (c. 200 B.C. to 200 A.D.) *by* G. Yazdani.—A fairly detailed and richly illustrated report of excavation.

Jñānaghana's Contribution to Advaita *by* E. P. Radhakrishnan.—A lucid exposition of the contribution to Advaita philosophy by the author of *Tattvaśuddhi*.

A Sociological study of the Forms of Marriage in Ancient India *by* Ludwik Sternbach.—Sound treatment, from the view-point of comparative Jurisprudence.

The Chinese Tripiṭaka *by* V. V. Gokhale.—Author describes in a popular way what is contained in the Chinese Tripiṭaka.

The Sūta Saṁhitā *by* V. Raghavan.—Author gives a summary of the contents of this section of the Skandapurāṇa and suggests that it was produced in the 10th century A.D.

A Topical Analysis of the Bhojanakutūhala, a work on Dietetics, composed by Raghunātha, between A.D. 1675 and 1700 *by* P. K. Gode.

The Contemporaneity of Samudragupta and Augustus Caesar of Rome *by* Dhirendranath Mookerji.—Full of absurd theories.

The Formation of Koṅkaṇī (contd. from vol. xx, p. 176) *by* S. M. Katre.

Bālacarita : A Rāmaic Play *by* C. R. Devadhar.

Bhāratīya Vidyā Vol. III, Part I, November 1941.

An Experiential Approach to the Bhagavadgītā *by* K. M. Munshi.—The whole thing is somewhat Nietzschean.

Indus Civilization : I. Descriptive *by* A. D. Pusalker.

Kavīndra Paramānanda and Keḷadi Basavabhūpāla *by* P. K. Gode.

Ājīvika Sect—A New Interpretation *by* A. S. Gopani.—Contd. from Vol. II, Pt. II, p. 210.—Author vehemently contests Hoernle's theory that the Ekadaṇḍins or the prototypes of the Ājīvikas had anything to do with the Jain monks of Pārśvanātha's time. "The fundamental doctrines of the Ājīvika sect are so much diametrically opposed to those of the Jaina school of Pārśvanātha's times and also to those of the Digambara Jaina school that such a comparison seems to be ridiculous."

Siricimdhakavvaṁ of Kṛṣṇalīlāśuka *by* A. N. Upadhye.—It is a Prākrit poem in twelve cantos, specially written to illustrate the rules of Vararuci's *Prākṛta-prakāśa* and Trivikrama's *Prākṛta-vyākaraṇa*. As specimen Dr. Upadhye gives the text of the first canto.

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Ancient India and the Outer World (Contd. from *Bhāratīya Vidyā* Vol. II, Pt. I, p. 103) *by* S. D. Gyani.—No more critical acumen has been displayed in this part than in the portion previously published. Author concludes: "For an impartial observer, in the light of evidence available, India cannot but be the original home of the Aryans".

Mahāvīra as the Ideal Teacher of the Jainas *by* Amulyachandra Sen.

Bhardvājas' Hymns to Agni (RV. VI, 5-12) *by* Manilal Patel.—Translation with critical notes.

Indian Historical Quarterly, Vol. XVII, No. 3, September 1941.

Abhidhamma Abhivinaya (in the first two Piṭakas of the Pali Canon) by I. B. Horner.

Revival of Maratha Power in the North (1761-1769) *by* Anil Chandra Banerjee.

Some Anglo-French Disputes in Bengal during Post-Diwani Period *by* Nandalal Chatterji.

A Critical Study of Kalyan Sing's Khulast-ut-Tawarikh *by* S. H. Askari.

Nāndī in Theory *by* Urmila Dave.

The Ten Incarnations of Viṣṇu in Bengal *by* Kamala Ray.—Discussion on the antiquity of Avatāravāda.

Firuz Shah Tughluq as a Ruler *by* K. K. Basu.

Bhoganātha—a Poet of the 14th Century *by* M. P. L. Sastry.

Bhojarāja-saccarita Nāṭaka of Vedānta-vāgīśa Bhaṭṭācārya, edited *by* H. C. Ray.—"The author seems to have been a court poet of Bhoja, the son of Sūrjana. As such he must be placed in the last quarter of the 16th or the first half of the 17th Century." "The drama is important for a study of the Sūrjanacarita."

Journal of the American Oriental Society, Vol. 61, *No.* 3, *September* 1941.

The Kṛṣṇacarita in the Harivaṁśa and certain Purāṇas *by* Walter Ruben.—Author has considered whether and how it is possible to reconstruct the archetype of the original Hariv.-supplement to Mbh. which certainly was shorter than our Hariv. of to-day and probably has been better preserved in the Brahmapurāṇam than in the Hariv.

Grains of Mediaeval India *by* Helen M. Johnson.—Discussion of the seventeen *dhānyas* mentioned in Hemacandra's *Abhidhānacintāmaṇi* 4. 234.

Journal of the Benares Hindu University, Vol. 6, *No.* 1, 1941.

The Vivāha Saṁskāra (Marriage Ceremonies) of the Hindus *by* Raj Bali Pandey.—Author has collected some relevant material from Vedic, ritual, and Smṛti literature.

Journal of the Bihar and Orissa Research Society, Vol. XXVII, Part III.

India beyond the Ganges *by* Lassen—Translated from German by A. Banerji-Sastri.

Notes on a Tibetan Account of Bengal *by* Sarkar.—Contd. from JBORS., June 1941.

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Capture of the Dutch Settlements in Bengal and Bihar, 1781 *by* Kalikinkar Dutta.—Based on unpublised records of the Imperial Record Department.

More Light on the Family of Vizir Ali *by* K. K. Basu.

Journal of the Royal Aiatic Society of Bengal, Letters, Vol. VII, 1941, *No.* 2.

Studies in Burushaski Dialectology *by* Siddheshwar Varma.—In this really scholarly work the author has tried to show that the dialects of Hunza and Nagar are not separate but closely allied ; the difference between them are however not superficial but historically important.

Seasonal Nomadism and Economics of the Chenchus of Hyderabad *by* Christoph von Fürer-Haimendorf.—The Chenchus have retained many characteristics of primitive food-collectors.

The Rock Engravings of the Middle Indus *by* M. E. & D. H. Gordon.—On inscriptional evidence the engravings are dated in the Kuṣāṇa period.

The Sohgaura Copper-plate Inscription *by* S. N. Chakravarti.—The alphabet remarkably resembles that of the Mauryan Brāhmī Inscription of Mahāsthān ; language the western variety of *Prācya* dialect. "The Sohgaura plate was cast into several copies and is a circular notice issued by the Council of Mahāmātras of Śrāvastī."

Time Indications in the Baudhāyana Śrauta Sūtra *by* P. C. Sen Gupta.—Author concludes that the mean date for the *Baudhāyana* rules for sacrifices should be taken as the year 887-86 B.C.

Some Dates in the Pāla and Sena Records *by* R. C. Majumdar.—Author shows that the hitherto accepted dates of five well-known inscriptions are uncertain if not wrong.

Journal of the University of Bombay, Vol. X (New Series) Part 2, *Sept.* 1941.

Hymns to Indra by the Bharadvājas *by* H. D. Velankar.—Translation with brief critical notes of RV. VI. 17-47.

Rare Sculptures from Kotyarka and an Illuminated Ms. of Gīta Govinda *by* M. R. Majumdar.

Raghunātha, a Protégé of Queen Dīpābāi of Tanjore and his works—between A.D. 1675 and 1712 *by* P. K. Gode.

Mudrārākṣasa and Kaumudīmahotsava *by* D. R. Mankand.—"Kaumudīmahotsava was composed on the occasion of Kalyāṇavarman's accession, Mudrārākṣasa on Candragupta I's re-accession and Devīcandragupta on the occasion of Candragupta II's accession."

Vāya Purāṇa versus Śiva Purāṇa *by* A. D. Pusalker.—"In the present state of our knowledge it seems to be safe to conclude that the printed Vāyu Purāṇa is a genuine Mahāpurāṇa, and that the Śiva Purāṇa is a late work not fit to be called a Mahāpurāna, but is only an Upapurāṇa."

Usāṇiruddham : A Prākrit Kāvya *edited by* A. N. Upadhye with Introduction, critical notes and an illustrative glossary. Author Rāma Pāṇivāda.

Iconograply of the Jain Goddess Sarasvatī *by* Umakant P. Shah.—Thorough and instructive.

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Man in India, Vol. XXI, Nos. 2 & 3 April-Sept., 1941.

The Aboriginal Tribes of the Udaipur State (C.P.) *by* Manindra Bhusan Bhaduri.

Games, Sports, and Pastimes in Prehistoric India *by* T. R. Padmanabhachari.

New Indian Antiquary, Vol. IV, Nos. 5-7.

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OBITUARY NOTICES

LATE RAI RAMAPRASAD CHANDA BAHADUR.

The death is announced of Rai Ramaprasad Chanda Bahadur, on the 28th May, 1942, at the age of 69 years at Allahabad.

For the last forty years Ramaprasad Chanda has been an indefatigable worker in the wide field of Indology. The author of several well known works e.g. *"Gauḍa Rājamālā"*, "The Indo-Aryan Races", "Mediaeval Indian Sculptures in the Collection of the British Museum," etc., and responsible by his inspiration for the foundation of the Museum of the Varendra Research Society, Rajshahi, of the Archaeological Museums of Khiching and Baripada, Mayurbhanj State, Chanda will be best remembered as the leader of what may be called the "Scientific history movement" of Bengal, 1905.

His contribution to Indian anthropology is no less distinguished, but his interest in this young Science arose mainly from his historical studies. To him history was not a mere chronicle of kings nor a record of glory deeds intended to stir up the murderous instincts of man ;—it was pre-eminently a study of civilizations.—civilization as created by different races of man, by their respective social and mental habits, thoughts and supersititions—civilization which grows, blossoms forth, comes in contact and conflict with other civilizations, develops and decays.

In all his studies of the various aspects of Indian Civilization, Chanda was guided by a genuine spirit of enquiry after truth. He could err. But his vanity, his pride was of that type which could rise to greatness by the acknowledgment of errors. It was quite in agreement with his own dispositioin that he quoted Lessing's famous passage as the motto for his "Indo-Aryan Races",—"If God held in His right hand all truth and in His left only the ever-active impulse to search for truth, even with the condition that I must for ever err, and said to me, "Choose !" I should bow before His left hand and say, "Father, give ! Pure truth belongs to Thee alone !"

A. K. Mitra.

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LATE RAI SARAT CHANDRA ROY BAHADUR.

We deeply mourn the death of Rai Bahadur Sarat Chandra Roy at the age of 71. He was known to all lovers of learning in India as well as the world outside as the heoric editor of "Man in India", practically the only ethnological journal in our country, which the maintained, almost single-handed, for more than twenty years. Roy's approach to science was altogether humanitarian. He was a staunch upholder of the cause of the aboriginals of India, and from his warm sympathy for these neglected peoples flowed the stream of his immortal works, e.g. "The Mundas and their Country" (1912), "The Oraons of Chotanagpur" (1915), "The Birtors" (1928), "Oraon Religion and Custom" (1928), "The Hill-Bhuinyas of Orissa" (1935), "The Kharias" (1937). Towards the end of his life the late Rai Bahadur tried his hand at prehistoric archaeology also and started researches on the "Asur" sites of Chotanagpur, which, he thought, reveal traces of a culture similar to that of Mahenjo-daro.

BATAKRISHNA GHOSH.

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To determine the shadow on any day at any desired instant of time——

विदिग्दिननवाभ्यासान्नतकृत्यंशको युतः।
विदिग्दिनशतांशेन गुणोऽसौव्ये ककौ हरः॥ २७॥
तदैक्याच्छङ्कुवर्गघ्नान्मध्यच्छायागुणाहतेः।
कृत्या युतात् पदं यत् स्यात्तस्माच्छेदाप्तमिष्टभा॥ २८॥

vidigdinanavābhyāsānnatakṛtyaṁśako yutah |
vidigdinaśatāṁśena guṇo 'sau vyekaka harah ||27||
tadaikyācchaṅkuvargaghnānmadhyachāyāgunāhateh |
kṛtyā yutāt padaṁ yat syāt tasmācchedāptamiṣṭabhā ||28||

27. Deduct 10 *ghatikas* from the length of the day ; multiply the difference by 9 ; divide the product by the square of the *nata-ghatika* (hour angle); add the quotient to the 100th part of the difference ; the result is called *guṇa* or multiplier (or numerator); deduct 1 from this (numerator), the difference is *hara* or divisor (denominator).

28. Add the multiplier and the divisor ; multiply the sum by the square of the *śaṅku* (gnomon, i.e. by $12^2=144$); add to this the square of the product of the mid-day shadow and the multiplier ; the square root of the sum divided by the divisor gives the shadow (in *aṅgulas)* at the required instant.

Notes.—(1) Illustration.—

Length of day	24 gh. 20 palas
Deducting	10 gh. 00 „
Difference *(vidigdina)*	14 gh. 20 „
Multiplying by	9
Product	129 gh. 00 „ (A)

If the *nata-ghaṭikās* at the instant be 9 *gh.* 20 *palas,* squaring, we get, 87 ;

dividing (A) by 87, we get 1—29′;

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adding this to the 100th part of 14 *gh.* 20 *palas,* namely, 9 *palas,* we get *guṇa* or multiplier or numerator=1–38′;
deducting 1, we get *hara* or divisor or denominator=0–38′;
adding multiplier and divisor, sum=2–16′;
multiplying by 144, product=326–14′ .... (B)
Now, midday shadow on the day, as found before,

	= 18 *ang.* 38′
multiplying by numerator	= 1 — 38′
product	= 30 *ang.* 26′

squaring, we get, 926–13′ .. .. .. (C)
Adding (A) and (C), sum =1252–37′;
square-root = 35–25′;
dividing by denominator 0–38′,
we get 'shadow' at the required instant=55 *ang.* 47′.

(1) Rationale—The formula may be thus expressed:
Shadow at the desired instant of time

$$= \frac{\sqrt{[(N+D)\,12^2+\{N\times 12\tan(\phi-\delta)\}^2]}}{D}$$

where N = numerator $= \frac{(d-10)\times 9}{h^2} + \frac{d-10}{100}$,

$D = (N-1)$,
d = length of day (sunrise to sunset),
h = *nata-ghatikā* or hour angle,
ϕ = latitude of the place of observer,
δ = declination of the sun on the day,
$12\tan(\phi-\delta)$ = mid-day shadow *(madhya-chāyā).*

$$\therefore \text{ Shadow } = \frac{\sqrt{\{(2N-1)\,12^2+N^2\,12^2\tan^2(\phi-\delta)\}}}{N-1}$$

$$= \frac{\sqrt{\{N^2.\,12^2\sec^2(\phi-\delta)-12^2(N^2-2N+1)\}}}{N-1}$$

$$= \sqrt{\left\{\frac{N^2\,12^2\sec^2(\phi-\delta)}{(N-1)^2}-12^2\right\}}$$

which shows that the hypotenuse (H) of the shadow triangle at the moment

$$= \frac{N}{N-1}\,12\sec(\phi-\delta),$$

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where 12 sec $(\phi - \delta) =$ mid-day hypotenuse, because, if the gnomon, shadow and hypotenuse at the moment be denoted by 12, P, H,

$P = 12 \tan z$,

$H = 12 \sec z$,

and $H^2 = P^2 + 12^2$

or $P^2 = H^2 - 12^2$,

where z is the zenith distance of the sun at the moment.

The formula therefore amounts to this :

$$H = \frac{N}{N-1} \times \text{mid-day hypotenuse.}$$

But, we know,

$$H = \frac{antyā}{antyā - R \text{ vers h}} \times \text{mid-day hypotenuse,}$$

where $antyā = R \pm R \sin (cara/2)$

[For, if z be the sun's zenith distance at the time, ϕ the latitude of the observer, δ the declination of the sun, and h the hour angle,

$$\text{Cos } z = \sin \delta \sin \phi + \cos \delta \cos \phi \cos h,$$

from well-known rules of Spherical Trigonometry.

$$\therefore \frac{12}{\cos z} = \frac{12}{\sin \delta \sin \phi + \cos \delta \cos \phi \cos h}$$

$$\therefore H = 12 \sec z = \frac{12 \sec (\phi - \delta)(\cos \delta \cos \phi + \sin \delta \sin \phi)}{\sin \delta \sin \phi + \cos \delta \cos \phi \cos h}$$

$$= \frac{12 \sec (\phi - \delta)\left[R + \frac{R \times R \sin \delta . R \sin \phi}{R \cos \delta . R \cos \phi}\right]}{\frac{R \times R \sin \delta . R \sin \phi}{R \cos \delta . R \cos \phi} + R \cos h}$$

$$= \frac{12 \sec (\phi - \delta) \times antyā}{antyā - R + R \cos h}$$

$$= \frac{\text{mid-day hypotenuse} \times antyā}{antyā - R \text{ vers h}} \Big]^{*}.$$

We have therefore to prove that $\frac{antyā}{antyā - R \text{ vers h}} = \frac{N}{N-1}$

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* For their proof, as well as proof by the Indian method, see Sen Gupta, *Khaṇḍakhādyaka*, III, v. 13, p. 73.

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$$= \frac{\frac{(d-10)9}{h^2} + \frac{d-10}{100}}{\frac{(d-10)9}{h^2} + \frac{d-10}{100} - 1}$$

$$= \frac{(d-10)\frac{900+h^2}{100\,h^2}}{(d-10)\frac{900+h^2}{100\,h^2} - 1}$$

$$= \frac{d-10}{(d-10) - \frac{100\,h^2}{900+h^2}}$$

$$= \frac{12\left(\frac{d}{2} - 5\right)}{12\left(\frac{d}{2} - 5\right) - \frac{50h^2 \times 12}{900+h^2}} = \frac{6(d-10)}{6(d-10) - \frac{50h^2 \times 12}{900+h^2}}$$

Now, when the Sun's declination is north,

$$caradala = \left(\frac{d}{2} - 15\right) \textit{ ghaṭikās}$$

$$= 6\left(\frac{d}{2} - 15\right) \text{ degrees}$$

$$= \left(6.\frac{d}{2} - 90\right) \text{ degrees}$$

If $R = 120^\circ$,

$$R \sin (caradala) = 2\ (6.\frac{d}{2} - 90) \text{ deg. nearly}$$

$$= 12.\frac{d}{2} - 180$$

$\therefore$ $antyā = R + R \sin (caradala)$

$$= 12.\frac{d}{2} - 60 = 12\left(\frac{d}{2} - 5\right) = 6(d - 10).$$

When the Sun's declination is south,

$$caradala = (15 - \frac{d}{2})\ gh.$$

$$= 6(15 - \frac{d}{2}) \text{ deg.}$$

$$= (90 - 6.\frac{d}{2}) \text{ deg.}$$

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Taking R = 120°,

$$\text{R sin } (caradala) = 2\,(90 - 6.\frac{d}{2}) \text{ nearly}$$

$$= 180 - 12.\frac{d}{2}$$

$\therefore$ *antyā* = R − R sin *(caradala)*

$$= 120 - (180 - 12.\frac{d}{2})$$

$$= 12.\frac{d}{2} - 60$$

$$= 12\,(\frac{d}{2} - 5) = 6\,(d - 10), \text{ as before.}$$

If *nata* (hour angle) = h *ghaṭikās*,

nata = 6 h deg.,

and R sin *(nata)* = R sin 6 h $= \dfrac{(180 - 6\text{ h})\ 6\ \text{h} \times 120}{10125 - \dfrac{(180 - 6\text{ h})\ 6\ \text{h}}{4}}$

(according to *Brahmagupta, Sphutagatyutārādhyāya,* 23—24, and *Śripati* II, 17 : vide also Sudhākara Dvidedi's commentary on vv. 8--10 of *Tripraśnādhikāra* in *Karaṇa-kutuhalam);*

$\therefore$ R cos *(nata)* = R sin (90° − *nata*)

$$= \frac{(90 + 6\text{ h})\ (90 - 6\text{ h}).\ 120}{10125 - \dfrac{(90 + 6\text{ h})\ (90 - 6\text{ h})}{4}}$$

$$= \frac{(15 + \text{h})\ (15 - \text{h})\ 480}{1125 - (15 + \text{h})\ (15 - \text{h})}$$

$$= \frac{(225 - \text{h}^2)\ 480}{1125 - (225 - \text{h}^2)}$$

$$= \frac{12\ (9000 - 40\text{h}^2)}{900 + \text{h}^2}$$

$$= 12\ (10 - \frac{50\text{h}^2}{900 + \text{h}^2})$$

$\therefore$ R vers *(nata)* = R − R cos *(nata)*

$$= 120 - (120 - \frac{50\text{h}^2 \times 12}{900 + \text{h}^2}) = \frac{50\text{h}^2 \times 12}{900 + \text{h}^2},$$

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$$\therefore \quad \frac{N}{N-1} = \frac{6\,(d-10)}{6\,(d-10) - \frac{50\,h^2 \times 12}{900 + h^2}}$$

$$= \frac{antyā}{antyā - R \text{ vers } (nata)}$$

$$= \frac{antyā}{antyā - R \text{ vers } h}$$

Thus, the proposition is proved.

To determine the hour angle from the hypotenuse of the shadow at any instant of time —

छायार्क (१२) वर्गसंयोगान्मूलं कर्णस्ततोऽपि भा ।
इष्ट कर्णः स्वमध्याह्नकर्णान्तरहृतो गुणः ॥ २९ ॥
विदिग्दिनशतांशोनगुणकेन विदिग्दिनात् ।
नवाहतात् फलं यत् स्यात्तन्मूलं नतनाड़िकाः ॥ ३० ॥

chāyārka-(12)-vargasaṁyogānmūlaṁ karṇastato 'pi bhā |
iṣṭaḥ karṇaḥ svamadhyāhnakarṇāntarahṛto guṇaḥ ||29||
vidigdinaśatāṁśonaguṇakena vidigdināt |
navāhatāt phalaṁ yat syāt tanmūlaṁ natanāḍikāḥ ||30||

29 (First half). Add the squares of the shadow and 12 ; the square root of the sum is *karṇa* (hypotenuse of the right-angled triangle formed by the gnomon (12) and its perpendicular shadow). From the *karṇa* again the shadow could be found.

29 (Second half) and 30. Divide the hypotenuse at any instant by the difference of the same hypotenuse and the mid-day hypotenuse ; the quotient is *guṇa* or multiplier (or numerator). Deduct from this numerator *(guṇa)* the 100th part of the length of the day less 10 *ghaṭikās ;* divide by this difference 9 times the length of the day less 10 *ghaṭikās ;* the square root of the quotient is *naṭaṇāḍikā* (hour angle in *ghaṭikās).*

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Notes.—(1) The gnomon *(śaṅku)* is always taken as 12. If therefore the shadow is known at any instant of time, the hypotenuse can be obtained from the square root of the sum of the squares of the shadow and the gnomon. Similarly, if the hypotenuse is known, the shadow can be obtained from the formula :

$$\text{shadow} = \sqrt{\text{hypotenuse}^2 - 12^2}\,.$$

(2) The rest of the rule shows how the hour angle can be determined from the observation of the hypotenuse of the shadow triangle at any desired moment, and is practically the converse of the rule for the determination of the shadow from the hour angle given in the preceding vv. 27-28. The formula is expressed in this way :

Let $\dfrac{\text{hypotenuse at desired moment}}{\text{hypotenuse at desired moment} - \text{mid-day hypotenuse}}$ be called N. Then

natanāḍikā=hour angle in *nāḍikās* or *ghaṭikās*

$$= \frac{\sqrt{9\,(d-10)}}{\sqrt{N - (d-10)/100}}$$

In the Notes under vv. 27-28, we have proved that

$$H = \frac{N}{N-1}\,H'$$

where H = hypotenuse at desired moment,
H′=hypotenuse of mid-day shadow,

$$N = \frac{(d-10)\,9}{h^2} + \frac{d-10}{100},$$

d = length of day from sunrise to sunset,
h = hour angle in *nāḍikās* ;

$$\therefore \frac{H}{H-H'} = \frac{N}{N-(N-1)} = N$$

$$= \frac{(d-10)\,9}{h^2} + \frac{d-10}{100}$$

$$\therefore \frac{H}{H-H'} - \frac{d-10}{100} = \frac{(d-10)9}{h^2}$$

$$\therefore h^2 = \frac{(d-10)\,9}{\dfrac{H}{H-H'} - \dfrac{d-10}{100}}$$

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and $h = \frac{\sqrt{(d-10)\,9}}{\sqrt{\frac{H}{h-H'}\,\frac{d-10}{100}}}$

which proves the rule.

(3) Illustration.—(a) gnomon=12, shadow=55-52′; square of gnomon =144, square of shadow=1881-5′; *karṇa*=square-root of the sum=57 *aṅg.* 8′.

(b) Let *iṣṭa-karṇa* (hypotenuse at desired moment)

be	57 *aṅg.* 8′
mid-day hypotenuse	20 *aṅg.* 10′
difference	36 *aṅg.* 48′

dividing *iṣṭa-karṇa* by this difference, quotient=*guṇa* (numerator)=1–38;

deduct from this 100th part of the length of the day less 10 *ghaṭikās*	0– 9
difference is divisor	1–29
multiplying by 9 the length of the day less 10 *ghaṭikās*, we get	129–00
dividing this by the divisor found above, the quotient is	87– 0

the square root of which is 9 *gh.* 20 *palas*, which is *nata* (hour angle);

mid-day is	12 *gh.* 10 *palas*,
thus, time elapsed from sunrise	= 2 *gh.* 50 *palas* (forenoon)
	or 21 *gh.* 30 *palas* (afternoon),

depending on the direction of the shadow leaning towards the west or the east.

Here ends *Tripraśnādhikāra.*

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Section IV—GRAHAYUTYADHIKĀRA

(Dealing with Conjunctions of Planets)

To determine the circumstances for the possible conjunctions of two planets —

ग्रहयोरन्तरे स्वल्पेऽनल्पभुक्तेः पुरस्सरः ।
यदाऽल्पगतिरेष्यः स्यात्तदा योगोऽन्यथा गतः ॥ ३१ ॥

grahayorantare svalpe 'nalpabhukteh purassarah |
yadā'lpagatireṣyah syāttadā yogo'nyathā gatah ||31||

31. When the distance (difference in the longitudes) of two planets is small, and when the slower planet is in front of the quicker, then their conjunction will (may) take place (a future event); otherwise (i.e., if the quicker planet is in front of the slower) the conjunction has (might have) already occured (a past event).

Notes.—(1) When the two planets are moving in the same direction (generally speaking, eastwards amongst the stars), the quicker planet will overtake the slower if in front, or must have passed the slower if behind.

(2) We speak of the possibility of a conjunction taking place or having taken place, instead of a certainty, because both the planets are not moving in the same orbit. The difference of orbits may lead to the non-occurrence of a conjunction inspite of the difference of longitudes being small. This question will be further investigated later on.

(3) Illustration.—

Longitude of true Sun	8^s	19°	$31'$
Longitude of true Moon	8^s	18°	$2'$
Difference	0^s	1°	$29'$

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Thus, the slower Sun being in advance of the Moon, we are to find out if and when the conjunction (Eclipse) will take place.

To determine the time when two planets will or did come together —

युत्या भिन्नदिशोर्गत्योरन्तरेणैकदिक्कयोः ।
ग्रहान्तरादिनानि स्युस्तैः समावनुपाततः ॥ ३२ ॥

yutyā bhinnadiśorgatyorantareṇaikadikkayoh |
grahāntarāddināni syustaih samāvanupātah ||32||

32. The time when the two planets did or will come together is obtained by proportion by dividing the difference in position (longitude) of the planets by the sum or difference of the daily motions of the planets according as they are moving in different directions or in the same direction.

Notes.—Illustration.—Let the longitudes of the sun and the moon be 8^s 19° 31′ and 8^s 18° 2′, and their true daily motions be 61′ and 741′, respectively. The slower sun is in advance of the quicker moon by 0^s 1° 29′, and, if the conjunction takes place, it will be after an interval of 89/680th part of a day, because the two bodies are moving in the same direction (from west to east) and the difference of their daily motions is 680′.

To determine the discs (or diameters) of the sun and the moon —

भानोर्बिम्बं रविच्छेदहृताः खखकृताचलाः ।
शशिनः खखभूरामाश्चन्द्रमन्दहरोद्धृताः ॥ ३३ ॥

bhānorbimbam ravicchedahṛtāh khakhakṛtācalāh |
śaśinah khakhabhūrāmaścandramandaharodhṛtāh ||33||

33. The disc of the sun is found (in *liptās)* by dividing 7,400 by the *cheda* (divisor) (as found in verse 13 above); while the disc of the moon is found (in *liptās)* by dividing 3,100 by the *manda* divisor *(manda-cheda)* of the moon (given in verse 13).

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Notes.—(1) According to the Rule,

the disc of the sun in *liptās*=7,400/ its *manda* divisor, and
the disc of the moon in *liptās*=3,100/ its *manda* divisor.

Now the mean values of the *manda* divisors of the sun and the moon are 224 and 97 respectively, and therefore the mean angular values of the discs of the sun and the moon are 33′ 2″ and 33′ 49″.

As the *manda* divisors are variable, so are also the discs, which become smaller or larger according as the bodies are at a longer or shorter distance from the earth than their mean distances. This variation is provided for in the Rule by making the denominator variable while the numerator remains constant.

(2) To understand the *rationale* of the Rule, we must understand the Indian system on which it is based. This system assumes—

(i) The length of the orbit of a planet multiplied by the number of its revolutions in a specified period, say, a *yuga*, is constant;

(ii) A minute of arc on the moon's orbit is equal to 10 *yojanas* according to *Āryyabhaṭa* and *Lalla* (who take the diameter of the earth as 1,050 *yojanas*), and is equal to 15 *yojanas* according to other Indian astronomers (who take the diameter of the earth as 1,600 *yojanas*). The two sets of figures may be reconciled, if we assume that one *yojana* of *Āryyabhaṭa* or *Lalla* is equal to 1.5 *yojanas* of the others.

Any circle is equal to 21,600 minutes of arc; the moon's orbit is therefore 216,000 or 324,000 *yajanas*, according as the minute of arc is taken as 10 or 15 *yojanas*.

The moon's orbit (in *yojanas*) multiplied by the moon's revolutions in a *yuga* is constant, according to the first assumption stated above. This constant, divided by the revolutions in a *yuga* of the other planets, gives the lengths of their respective orbits, and the respective orbits divided by the value of 2π (ratio of circumference to radius) gives the respective distances of the planets from the earth in *yojanas*.

The number of sidereal days of a planet is obtained by dividing the total number of days in a *yuga* by the revolutions of the planet in the *yuga*.

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The mean daily motion of a planet is obtained by dividing the orbit by the number of sidereal days ; if the angular measure of the orbit is taken, it is equal in every case and is 21,600 minutes,—which divided by the number of sidereal days gives the mean angular daily motion ; while, if the linear measure of the orbit is taken (in *yojanas,* say), this divided by the number of sidereal days gives the same number of *yojanas* in the case of every planet, which is evidently true otherwise, for, the product of the length of the orbit and the number of revolutions in a *yuga* being constant, each planet covers the same linear distance in a *yuga,* and dividing this by the number of days in a *yuga,* the mean linear daily motion must be the same. This is about 8,000 *yojanas* according to *Āryyabhaṭa* and *Lalla,* and is about 12,000 *yojanas* according to the others.

The mean linear measures of the discs (diameters) of the sun and the moon, given in *yojanas* by *Āryyabhaṭa, Lalla* and *Sūryya-Siddhānta,* may be compared —

	Sun	Moon
Āryyabhaṭa	4,410	315
Lalla	4,410	320
Sūryya-Siddhānta	6,500	480

According to *Sūryya-Siddhānta* and others (other than *Āryyabhaṭa* and Lalla), the comparative figures are :—

Planets	A Orbits =21,600′	B =A ÷ 21,600′ Equivalent of 1′ of arc of orbit	C =A ÷ 2π Mean distances	D Sidereal periods	E =A ÷ D Mean daily motion		F Apparent diameters	
	Yojanas	*Yojanas*	*Yojanas*	Days	*Yojanas*	Minutes of arc	*Yojanas*	Angular
Moon	324,000	15	51,566	27.32	11,858.7	790′.6	480	32′
Mercury	1,043,209	48.3	166,031	87.97	11,858.7	245′.5		3′
Venus	2,664,637	123.3	424,089	224.70	11,858.7	96′.1		4′
Sun	4,331,500	200.5	689,378	365.26	11,858.7	59′.1	6,500	32′ 24″
Mars	8,146,909	377	1,296,618	687.00	11,858.7	31′.4		2′
Jupiter	51,375,764	2,378.5	8,176,687	4,332.32	11,858.7	5′		3′ 30″
Saturn	127,668,255	5,910.5	20,318,981	10,765.77	11,858.7	2′		2′ 30″

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It is difficult to say how these measures were obtained ; angular measures must have been obtained by observation and then converted into linear measures at the rate of the appropriate number of *yojanas* to a minute of arc according to the orbit of the planet, and thence its distance from the earth. Assuming these linear measures, however, the angular measures may be similarly obtained by converting these linear measures into minutes according to the equivalence of *yojanas* to a minute of arc of the respective orbits, or by the formula :

$$\theta = R \tan \theta = R.r/d$$

where θ is the angular *semidiameter* in minutes, R=3438′, r is the linear semi-diameter in *yojanas,* and d is the distance in *yojanas* from the earth. From this formula it follows that $d \times \theta = R \times r$=constant, and therefore the angular semidiameter varies inversely as the distance from the earth ; the true angular semi-diameter of a planet will be greater or smaller than the mean angular semi-diameter according as the true distance from the earth is smaller or greater than the mean distance.

Referring to the formula for the *Equation of Centre* in the theory of planetary motions, $R \sin E = \frac{R.\ p.\ \sin K}{\sqrt{R^2 \pm 2\ p\ R \cos K + p^2}}$

$$= \frac{R.\ p.\ \sin K}{R \pm p \cos K} \text{ (approximately),}$$

where the denominator ($\sqrt{R^2 \pm 2p\ R \cos K + p^2}$ or $R \pm p \cos K$) represents and is therefore proportional to the true distance of the planet from the earth, if R represents and is proportional to the mean distance. In *Laghumānasa,* both the numerator and denominator in the formula for R sin E have been reduced to smaller numbers for facility of calculation by division by the same quantity, and thus the reduced denominator remains proportional to the distance of the planet from the earth.

In the formulas for the discs *(diameters)* $2\theta = \frac{2R \times r}{d}$ of the sun and the moon given in this verse, the constant numerator 2 R × r has been reduced in such a way that the denominator may be represented by the reduced denominators in the formula for R sin E. Thus,

diameter of the sun=2 R×r/d=3438′×4410/459,585
(taking the mean value of d)

$$= \frac{2052 \times 7393}{2052 \times 224} = \frac{7,400}{224} \text{ approximately,}$$

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where 224 was obtained as the mean divisor for the sun in the formula for R sin E in the *Laghumānasa* (see verse 13); if the true value of d is taken, the true value of this divisor is also to be used.

Similarly, diameter of the moon$=2\ R\times r'/d'$

$=315\times 3438'/34{,}377 \quad = \frac{354\times 3060}{354\times 97} \quad = \frac{3{,}100}{97}$ approximately,

for the mean value ; and for true values, 97 is to be replaced by the true values of the divisor in the formula for R sin E.

To determine the diameter of the Shadow of the Earth at the distance of the Moon — .

छायाग्रहः सषड्भोऽर्कस्तन्मण्डलकलामितिः ।
चन्द्रमार्गे शशिच्छेदहृताः खखगुणोरगाः ॥ ३४ ॥

chāyāgrahah saṣaḍbho 'rkastanmaṇḍalakalāmitih |
candramārge śaśicchedahṛtāh khakhaguṇoragāh ||34||

34. The "Shadow Planet" is six signs added to the longitude of (i.e. distant from) the Sun ; the disc (or diameter) of the Shadow Planet in the orbit of the Moon is found by dividing 8,300 by the "divisor" of the Moon *(candra-ccheda* as given in verse 13).

Notes.—(1) The Earth casts a conical shadow on the side opposite to that of the Sun. It is therefore six signs or 180 degrees away from the Sun. As the Sun moves, so also does the Shadow ; hence it is imagined to be a 'planet' and is called the Shadow Planet.

(2) Lunar Eclipse takes place when the Moon enters the Shadow of the Earth. It is therefore necessary to determine the measure of the breadth (or section) of the Shadow at the distance of the Moon or in the lunar orbit (i.e., where the Shadow is cut by the lunar orbit). The breadth or diameter of the section of the Shadow at the distance of the Moon is given by 8,300 *liptās/ śaśi-ccheda,* and this will vary as the *śaśi-ccheda* will vary. As the mean value of *śaśi-ccheda* is 97 (see v. 13), the mean value of the diameter of the Shadow at the distance of the Moon is 85′ 34″.

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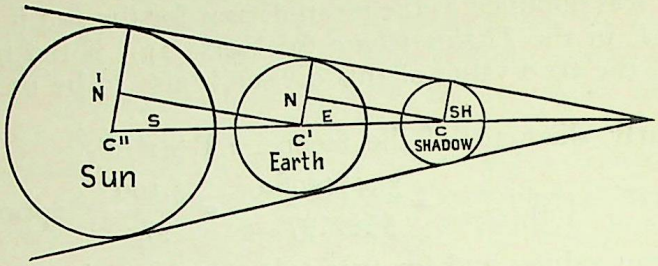

Diagram XV

(3) From the accompanying Diagram XV, if S, E and Sh be the semi-diameters of the Sun, the Earth, and the Shadow at the distance of the Moon, and d_1 and d_2 be the distances of the Sun and the Moon respectively from the Earth, it follows from the similar triangles C N C′ and C′ N′ C″ that C′N / C″N′=d_2/d_1, or

$$\frac{E-Sh}{S-E} = \frac{d_2}{d_1} = \frac{34{,}377}{459{,}585}$$

$$\text{or } \frac{525-Sh}{2205-525} = \frac{34{,}377}{459{,}585},$$

whence Sh=400 *yojanas* nearly, and therefore the diameter of the Shadow at the distance of the Moon=800 *yojanas* nearly. The angular measure of the diameter is, taking 10 *yojanas* to a minute of arc, 80′ ; the angular measure may also be deduced as

$$\frac{800\times 3438'}{34{,}377} = \frac{354\times 7770}{354\times 97} = \frac{7770}{97}$$

The numerator is however taken in the *Laghumānasa* as 8300.

To determine the angular measures of the diameters of the other Planets —

अङ्कानी(६)शा(११) नखाः(२०) सूर्य्या(१२) द्वियमा(२२) दशताडिताः ।
स्वशीघ्रच्छेददिग्योगहृता बिम्बानि भूसुतात् ॥ ३५ ॥

añgānīśā nakhāh sūryā dviyamā daśatāditāh |
svaśīghracchedadigyogahṛtā bimbāni bhūsutāt ||35||

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35. The magnitude (the diameter) of the discs of the other planets commecing from Mars (i.e., of Mars, Mercury, Jupiter, Venus and Saturn) is obtained by multiplying 6, 11, 20, 12 and 22 by 10 and dividing the products by the corresponding *śīghra* divisors increased by 10 each.

Notes.—(1) The mean *śīghra* divisors are 12, 21, 39, 11 and $73\frac{1}{2}$ respectively for the planets Mars, Mercury, Jupiter, Venus and Saturn (see v. 15). The mean diameters are therefore found in *liptās* as follows :

mean diameter of Mars $= 6\times10/(12+10)=2'\ 44''$
mean diameter of Mercury $= 11\times10/(21+10)=3'\ 31''$
mean diameter of Jupiter $= 20\times10/(39+10)=4'\ 5''$
mean diameter of Venus $= 12\times10/(11+10)=5'\ 43''$
mean diameter of Saturn $= 22\times10/(73\frac{1}{2}+10)=2'\ 38''$

The true diameters are obtained by using the true *śīghra* divisors, as given in v. 16.

(2) A comparative Table of the mean values given by different authorities (*Āryyabhaṭīya, Daśagītikāpāda*, v. 7 ; *Brahmagupta, Grahayutyadhikāra*, v. 2 as reconstructed by Sudhakara Dvivedi ; *Lalla, Śiṣyadhivṛddhida, Grahayutyadhikāra*, vv. 2-4 ; *Sūr. Sid.*, VII, 13 ; *Bhāskarācāryya, Grahayuti*, v. 1 ; Ball, Spherical Astronomy, Table II at the end) is shown here —

According to	Mars	Mercury	Jupiter	Venus	Saturn
Āryyabhaṭa—					
At the distance of the Moon *—					
In *yojanas*	315/25	315/15	315/10	315/5	315/20
or	12.6	21	31.5	63	15.75
In arc	1′ 15″	2′ 6″	3′ 9″	6′ 18″	1′ 34″
(1′ = 10 *yojanas*)					

* According to Sen Gupta (*Āryyabhaṭīyam*, Translation, by P. C. Sen Gupta), the diameters of Venus, Jupiter, Mercury, Saturn and Mars are respectively 1/5, 1/10, 1/15, 1/20 and 1/25 of the diameter of the moon, *taken at the mean distance of the sun*, and are therefore respectively equal to 28″.29, 14″.14, 9″.43, 7″.07, 5″.66 (*Gītikāpāda*, v. 7).

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According to	Mars	Mercury	Jupiter	Venus	Saturn
Brahmagupta	4′ 46″	6′ 14″	7′ 22″	9 0″	5′ 24″
Lalla—					
At the distance of the Moon—					
In *yojanas*	320/25	320/15	320/10	320/5	320/20
or	12.8	21.3	32	64	16
In arc (1′=10 *yojanas*)	1′ 16″	2′ 7″	3′ 12″	6′ 24″	1′ 36″
Sūryya-Siddhānta—					
Upon the Moon's orbit—					
In *yojanas*	30	45	52½	60	37½
In arc (1′=15 yojonas)	2′ 0″	3′ 0″	3′ 30″	4′ 0″	2′ 30″
Bhāskarāchāyya	4′ 45″	6′ 15″	7′ 20″	9″ 0″	5′ 20″
LAGHUMĀNASA	2′ 44″	3′ 31″	4′ 5″	5′ 43″	2′ 38″
Tycho Brahe	1′ 40″	2′ 10″	2′ 45″	3′ 15″	1′ 50″
Ball—					
Least	4″	4″	30″	9″	15″
Greatest	27″	12″	49″	1′ 14″	21″
At Earth's mean distance from the Sun—					
In miles	4,216	3,008	87,700	7,566	76,340
In arc	9″.36	6″.68	3′ 14″.72	16″.8	2′ 49″.5

(3) The method of obtaining true diameters from their mean values are given in *Brāhmasphuṭasiddhānta, Grahayutyadhikāra,* vv. 3-4 ; *Sūryya Siddhānta,* VII, v. 14 ; *Bhāskarācāryya, Grahayuti,* v. 2.

The principle of derivation rests on the following ratio :

$$\frac{\text{True apparent diameter}}{\text{Mean apparent diameter}} = \frac{\text{mean distance}}{\text{true distance}}.$$

According to *Sūryya Siddhānta,* VII, v. 14, this ratio

$$= \frac{2}{\text{Radius} + \text{Śīghrakarṇa}} \times \text{Radius},$$

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i.e., true apparent diameter

$$= \text{mean apparent diameter} \times \frac{\text{Radius}}{\frac{1}{2}(\text{Radius} + \textit{Śīghra Hypotenuse})}$$

According to *Laghumānasa*, Radius or *Tri-jyā*=8 $\frac{8}{60}$ =10 approx., and the formula should be :

true apparent diameter

$$= \text{mean apparent diameter} \times \frac{2 \times 10}{\textit{śīghra-ccheda} + 10};$$

and the mean diameters themselves are obtained by the formula : $n \times 2 \times 10/$ (mean *śīghraccheda*+10), the values of n being 6, 11, 20, 12 and 22 respectively for Mars, Mercury, Jupiter, Venus and Saturn, and the true diameter is thence deduced by replacing mean *śīghraccheda* in the denominator by true *śīghraccheda*, or by the formula :

true apparent diameter

$$= \text{mean apparent diameter (found as above)} \frac{(\text{mean } \textit{śīghraccheda} + 10)}{(\text{true } \textit{śīghraccheda} + 10)}.$$

In all these calculations, *Laghumānasa* seems to have omitted by inadvertence the factor 2 in the numerator, and its results, though agreeing more or less with the *Sūryya-Siddhānta* values, are about half of what are given by *Brahmagupta* or *Bhāskarācārya*, as may be seen from the preceding Table.

[Between verses 35 and 36, *Parameśvara* gives the following verse, which he himself characterises as interpolated, which gives the positions of the ascending Nodes of Mars, Mercury, Jupiter, Venus and Saturn :—

कृतनेत्रभुजङ्गाङ्गदिशोदशाहताः क्रमात् ।
पातभागाः कुजादिनां पातक्षेपौ न भास्वतः ॥

kṛtanetrabhujaṅgāṅgadiśo daśāhatāḥ kramāt |
pātabhāgāḥ kujādināṁ pātakṣepau na bhāsvataḥ ||

The degrees of the (ascending) Nodes of the planets beginning with Mars are respectively 4, 2, 8, 6, 10 multiplied by 10. The sun has no Node and no deviation from the Ecliptic (i.e., no latitude).

Notes.—(1) This verse may be an interpolation so far as *Laghumānasa* is concerned (and it is an interpolation because no other com-

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menator or manuscript gives this verse at this stage), but the rule given here is what is taught by *Āryyabhaṭa* and *Khaṇḍakhādyaka,* namely, that the longitudes of the ascending Nodes of these planets (Mars, Mercury, Jupiter, Venus, Saturn) are respectively 40, 20, 80, 60 and 100 degrees.

(2) As has been shown under verse 2, the same values are indicated by the quotation of *Praśastidhara,* perhaps from *Bṛhanmānasam,*

"* * * वसुनवरसेषवो राहोः ।

कृत (४) यम (२) वसु (८) रस (६) दशका (१०) दशाहताः शेषपातांशाः ॥"

"..... *vasunavaraseṣavo rāhoh* |
kṛtayamavasurasadaśakā daśāhatāh śeṣapātāṁśāh ||"

(3) According to Modern Science, their positions in 1900 were 48° 47′, 47° 8′, 99° 26′, 75° 46′ and 112° 47′ respectively.]

To determine the latitudes of the Planets —

मन्दस्फुटात् स्वपातोनाद् ग्रहाच्छीघ्राज्ज्ञशुक्रयोः ।
भुजाः षट्कृति(३६)सूर्य्या(१२)ष्टि(१६)नवा(९)ष्ट्य (१६)
ष्टि(१६)हताः क्रमात् ॥ ३६ ॥

चन्द्राद्विक्षेपलिप्ताः स्युस्ताः कुजाद्व्यासताड़िताः ।
शीघ्रच्छेदहृताः स्पष्टाः स्वर्णाख्या दक्षिणोत्तराः ॥ ३७ ॥

mandasphutāt svapātonād grahacchīghrāj jñaśukrayoh |
bhujāh ṣaṭkṛtisūryāṣṭinavāṣṭyaṣṭihatāh kramāt ||36||
candrād vikṣepaliptāh syustāh kujādvyāsatāḍitāh |
śīghracchedahṛtāh spaṣṭāh svarṇākhyā dakṣiṇottarāh ||37||

36. Deduct the longitude of the Node from the longitude of the planet as corrected by the *maṇḍa* operation (other than Venus and Mercury), and, in the case of Venus and Mercury, as corrected by the *śīghra* operation ; multiply the *bhuja-jya* of the difference respectively by 36 (square of 6), 12, 16, 9, 16 and 16.

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37. Commencing from the Moon, these products are the latitudes in *liptās*. The products from Mars (i.e. for Mars, Mercury, Jupiter, Venus and Saturn) are to be multiplied by the *vyāsas* (mean *śīghra* divisors, see v. 15) and divided by the (true) *śīghra* divisors (see v. 15), to give the true latitudes of the corresponding planets. The latitude is termed positive or negative, according as it is South or North.

Notes.—(1) Compare *Khaṇḍakhādyaka*, VIII, 6 :

स्वं स्वं विशोध्य पातं समलिप्तात् सौम्यशुक्रयोः शीघ्रात्।
जीवा विक्षेपगुणा हृताऽन्त्यकर्णन विक्षेपः ॥

The longitude which is to be taken in deriving the latitude is the apparent heliocentric longitude and not the geocentric longitude ; in the case of the planets other than Venus and Mercury, such heliocentric longitude is given by the mean longitude as corrected by the *manda* operation, while in the case of Venus and Mercury it is given by the mean longitude as corrected by (*manda* and) *śīghra* operation. (See Sen Gupta, *Khaṇḍakhādyaka*, VI, 3, Notes, pp. 117 and 118).

Compare also *Brahmagupta, Grahayutyadhikāra*, 9 and 10 :

मन्दफलस्फुटशशिनो विक्षेपो भौमजीवरविजानाम्।
मन्दफलाव्यस्तस्फुटशीघ्राद्बुधशुक्रयोरथवा ॥ ९ ॥
समलिप्तस्फुटमध्यात् स्वपातयुक्ताज्ज्ञशुक्रयोः शीघ्रात्।
जीवा विक्षेपगुणा हृता ऽन्त्यकर्णन विक्षेपः ॥ १० ॥

(2) If λ be such difference of heliocentric longitude and longitude of Node, β the corresponding latitude, and ω the inclination of the orbit (i.e., the angle between the orbit and the ecliptic), we have, according to Spherical Trigonometry, $\tan \beta = \tan \omega \sin \lambda$

and, for small angles, $\tan \beta = \beta$ (radian),

and, if R is expressed in minutes (3438′), R β expresses the latitude in minutes.

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$\therefore$ $3438.\beta$ = latitude in *liptās* (minutes)

$= 3438. \tan \beta = \tan \omega . 3438 \sin \lambda$

$= \frac{488 \sin \lambda}{60} \times \frac{60 \times 3438}{488} \tan \omega$

$= 8° 8' \sin \lambda + \frac{60 \times 3438}{488} \tan \omega$

$= 8° 8' \sin \lambda \times K.$

The first factor, namely, $8° 8' \sin \lambda$, is the *bhuja-jyā* of the portion of the (heliocentric) longitude measured from the Node, and the sine function (in the determination of the latitude) is correctly stated. The values of K are 36, 12, 16, 9, 16 and 16 for Moon, Mars, Mercury Jupiter, Venus and Saturn respectively. According to *Laghumānasa,* $\tan \omega$ is therefore given by $\frac{K \times 488}{60 \times 3438}$, and ω in minutes $= 3438' \tan \omega$

$= \frac{K \times 488}{60}$.

The inclinations (ω) of the orbits are thus given by different authorities :

Planets	*Āryyabhatīya & Khaṇḍakhādyaka*	*Varāhamihira*	*Sūryya-Siddhānta*	*Brahmagupta & Bhāskarācāryya*	True Values	*Laghumānasa*
Moon	270′	270′	270′	270′	309′	293′
Mars	90′	10′	90′	110′	111′	98′
Mercury	120′	135′	120′	152′	420′	131′
Jupiter	60′	101′	60′	76′	78′	73′
Venus	120′	101′	120′	136′	204′	131′
Saturn	120′	135′	100′	130′	150′	131′

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(3) The process of multiplying the *liptās* of latitude (thus found) by *vyāsa* and dividing by *śīghra* divisor is intended to correct for the true distance of the planet from the earth, the result obtained for the mean distance.

(4) According to the convention adopted by *Laghumānasa*, *bhujajyā* for the first two quadrants (i.e. when the planet moves from the Ascending Node to the Descending Node) is negative, and for the next two quadrants it is positive ; but the latitude is North in the first case, and South in the second. Hence the Rule.

(5) Illustration.—Let

Planet (Mars)	$= 5^s$	5°	$2'$
Node	$= 1^s$	10°	$0'$
Difference	$= 3^s$	25°	$2'$

Bhuja-jyā $= -7^\circ\ 47' = -7\ \frac{47}{60}$.

Multiplying by 12, latitude $= 93'\ 24''$;
multiplying by *vyāsa* 5—27, and,
dividing by *śīghraccheda* 13—29,
latitude $= 38$ *liptās* (North).
The latitude is North, since the sign of *bhujajyā* is negative.

To determine the angular distance between the centres of the two (obscurer and obscuring) planets and the condition for an eclipse—

विक्षेपयोः समदिशोरन्तरं भिन्नयोर्युतिः ।
बिम्बान्तरं लघुन्यस्मिन् भेदो मानार्धयोगतः ॥ ३८ ॥

vikṣepayoh samadiśorantaraṁ bhinnayoryutih |
bimbāntaraṁ laghunyasmin bhedo mānārdhayogatah ||38||

38. The distance between (the centres of) the Discs of the (obscurer and obscuring) planets is the difference or the sum of their latitudes (at the instant of opposition) according as such latitudes are of the same or different denominations (i.e., both North or South, or

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one North and the other South). If such distance be less than half the sum of the (diameters of the) Discs (of the two bodies), then is there an eclipse (literally, intersection).

Notes.—(1) Compare *Brahmagupta, Grahayutyadhikāra,* 11.

(2) An eclipse can take place when the two bodies have the same longitudes ; the difference of their latitudes at the moment (if both North or both South) and their sum (if one is North and the other South) will evidently measure the angular distance between the centres of the two bodies.

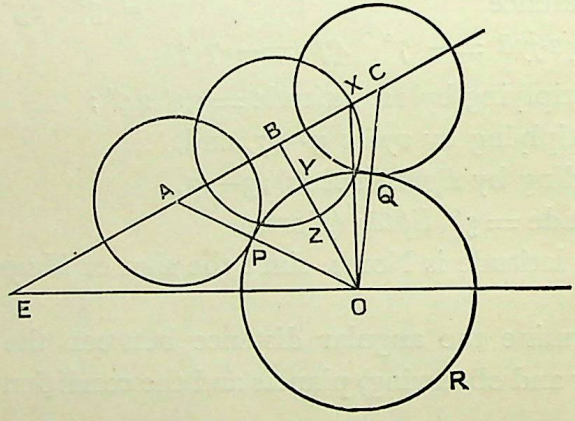

Diagram XVI

(3) When the two bodies just touch one another externally, the distance between the centres is the sum of their radii. There will be an eclipse if the distance between the centres is less than the sum of the radii, because then the bodies will be seen to cut one another (in projection), while if the distance is greater than the sum of the radii there will be no eclipse. Hence the Rule. (See Diagram XVI).

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To determine *lambana* (parallax in longitude)—

ग्रहोनं लग्नमक्षघ्नं लम्बनद्युगतं युतौ।
लम्बनं द्व्यक्षकर्णाप्तं नतोनाहतविंशतेः ॥ ३९ ॥

grahonaṁ lagnamakṣaghnaṁ lambanadyugataṁ yutau |
lambanaṁ dvyakṣakarṇāptaṁ natonāhataviṁśateḥ ||39||

39. Deduct the longitude of the planet from the *lagna* (orient ecliptic point); the difference multiplied by 5 is the *lambana-dyugata* (portion of day elapsed taken in the determination of *lambana),* in calculating an eclipse. Deduct from 20 the hour angle derived therefrom ; multiply the difference by the hour angle ; divide the product by 2 and by the hypotenuse of the equinoctial shadow ; the result is *lambana* (parallax in longitude).

Notes.—(1) The 12 signs rise during 60 *ghaṭikās,* one sign rising in 5 *ghaṭikās* approximately (on an average), and a degree or a minute rising in proportionate time.

(2) The difference between the *lagna* and the planet in signs and parts of signs, multiplied by 5, gives the interval in *ghaṭikās* between the rising of the planet and the desired moment (i.e., the end of *amāvasyā,* in the case of a solar eclipse); this interval in *ghaṭikās* being deducted from the *ghaṭikās* of half a day gives the hour angle in *ghaṭikās.*

(3) The formula for parallax in longitude *(lambana)* is then given as $\frac{(20-h)\times h}{2\times 12 \sec \phi}$ where h is the hour angle in *ghaṭikās,* and ϕ the latitude of the observer's station.

(4) Parallax is considered in Indian Astronomy mainly in connection with the calculation of a solar eclipse. Parallax arises on account of the fact that the observer is on the surface of the earth and not at its centre. The true zenith distance of a planet is the angle between the Zenith of the observer and the planet, measured at the centre of the celestial sphere, i.e. the centre of the earth ; the apparent zenith distance as seen by the observer on the surface of the earth is the angle subtended at the observer. The apparent zenith distance is greater than the true zenith distance, and the difference is called (geocentric) *parallax ;* if the planet be at the zenith, the zenith distances (true and apparent) become zero, and so also the parallax ; the

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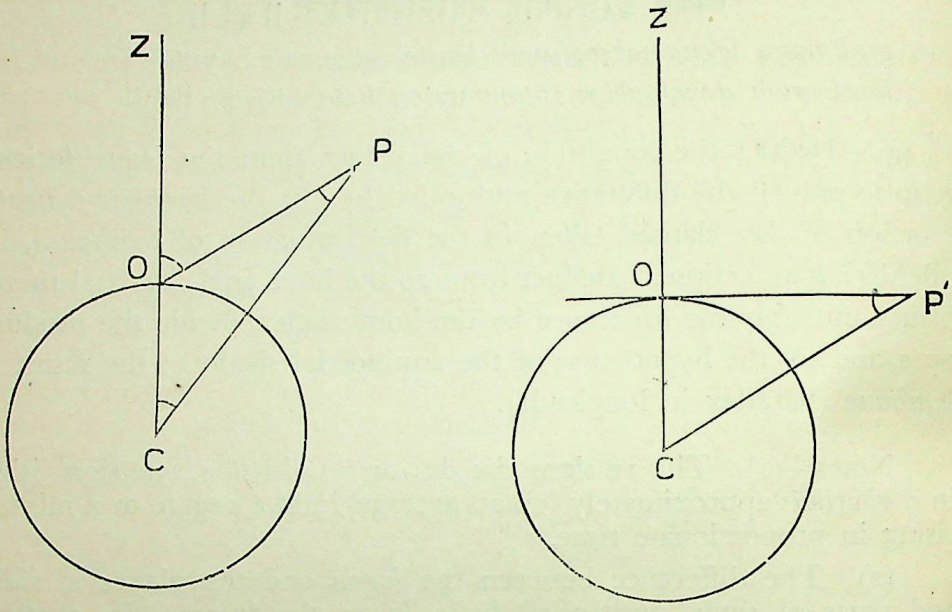
parallax is greatest when the planet is on the horizon and is called the *horizontal parallax*. The effect of parallax is to depress the planet from the Zenith of the observer in a vertical circle.



(a) Diagrams XVII (b)

Thus, in the Diagrams XVII (a) and (b), C, O, Z and P (and P') represent the centre of the earth, the observer's position on the surface of the earth, the Zenith and the Planet ; the angle ZCP is the true zenith distance of P, and the angle ZOP the apparent zenith distance, which is greater than the angle ZCP by the angle OPC, which is called the Parallax. From the triangle OPC, sin $\angle$ OPC/OC = sin $\angle$ POC/PC = sin $\angle$ ZOP/PC. When P is on the horizon at P' (in (b) of Diagram XVII), angle ZOP' is a right angle, and then sin $\angle$ OP'C = OC/P'C = radius of earth/distance of the Planet from the centre of the earth. The radius (r) of the earth being small compared with the distance (d) of the planet from the centre of the earth, r/d = sin $\angle$ OP'C = angle OP'C (in radians) = horizontal parallax (say, p). Then parallax (say, p') for any other point = p $\times$ sin (zenith distance).

Although parallax for any planet may be determined independently (all Indian astronomers from the time of *Brahmagupta* take the horizontal parallax of a planet as equivalent to the fifteenth part of its daily motion in longitude), in the calculation of a solar eclipse the difference between the parallaxes of the sun and the moon is all that is necessary. At the instant of conjunction, the sun, the moon

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(assumed as having no latitude) and the centre of the earth are in the same straight line, but, at the place of the observer, the moon is depressed from the straight line joining the sun and the observer by the difference between the parallaxes of the sun and the moon. The projection (on the ecliptic) of this depression (in the vertical circle) measures the shifting of the moon from the sun in longitude, and its projection perpendicular to the ecliptic the apparent change in celestial latitude, and are respectively known as parallax in longitude *(lambana)* and parallax in latitude *(nati)*. With the help of the former is determined the instant of conjunction as seen from the place of the observer, and with the latter the latitude of the moon is corrected.

Sen Gupta has very ably discussed the whole question in his paper "Parallax in Hindu Astronomy" (Vide Proceedings of the Science Convention for the year 1917). He has shown that, if α and β are the parallaxes in longitude and latitude of the moon, l and l′ the longitude and latitude of the moon, Z the zenith distance of the moon, N and Z′ the longitude and zenith distance of the nonagesimal (i.e. the point of the ecliptic 90 degrees less than the *lagna)*, and p the horizontal parallax of the moon,

$$\alpha = \frac{p.\cos Z' \sin (l-N)}{\cos l'},$$

$$\text{and } \beta = \frac{p}{\cos l'}(\sin Z' - \sin l' \cos Z);$$

if the moon is assumed to be on the ecliptic, $l' = 0$, when the expressions become :

$$\alpha = p \cos Z' \sin (l-N), \text{ and}$$
$$\beta = p \sin Z',$$

which are the formulas given in the *Siddhāntas*.

$$\text{Now, } p = \frac{r}{d} \text{ (in radians)}$$

$$= \frac{r}{d} \times 3438' \text{ (in minutes)},$$

because 1 radian = 3438′ (where r = radius of the earth, and d the distance of the planet from the centre of the earth). If ω be the mean daily angular motion of the planet in minutes,

$$\omega = \frac{s}{d} \times 3438'$$

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where s = the common daily linear speed of all the planets = 12,000 *yojanas* nearly ; also r = 800 *yojanas* nearly ; hence r = s/15, and

$$p = \frac{r \times 3438'}{d} = \frac{s}{15} \times \frac{\omega}{s} = \frac{\omega}{15}.$$

Thus, according to Indian Astronomy, the vertical horizontal parallax is equal to the fifteenth part of the mean daily motion *(i.e.,* motion during 60 *ghaṭikās)* of the planet, and therefore the time equivalent of the vertical horizontal parallax is 4 *ghaṭikās,* i.e., the planet moves through the vertical depression equal to horizontal parallax in 4 *ghaṭikās,* moving with mean daily motion ω.

If p_1 and p_2 are the parallaxes of the moon and the sun, and ω and ω′ their mean daily motions, the difference of parallaxes of the moon and the sun

$$= p_1 - p_2 = \frac{\omega - \omega}{15},$$

which is passed by the moon moving with the motion relative to the sun (i.e. the *difference* of daily motions) in 4 *ghaṭikās.*

According to *Paulisa* and *Romaka Siddhāntas,* parallax in longitude (in time) = 4 *ghaṭikās* × sin hour angle. This seems to be based on the proportion :

$$\frac{\text{desired parallax}}{\text{greatest parallax}} = \frac{\text{sin hour angle}}{\text{sin 90 degrees}}$$

assuming that the greatest parallax is attained when the hour angle is 90 degrees. If h be the hour angle of the moon, parallax in longitude (in minutes of arc) = p. sin h.

Laghumānasa seems to have taken the value, namely, 4 *ghaṭikās* × sin hour angle, for parallax in vertical circle in time. If the hour angle, h, be measured in *ghaṭikas,* it is 6h in degrees, and 6h. $2\pi/360$ or $h/10$ in radians. Then *Laghumānasa* seems to use the formula sin A = (2—A) A, where A is expressed in radians. Thus, parallax in longitude (in *ghaṭikās)*

= 4. sin h. cos ϕ, being measured in *ghaṭikās,*

(assuming the equator and the ecliptic to be the same circle, and thus taking the angle between the vertical circle and the ecliptic as ϕ, the latitude of the observer),

$$= 4 \left(2 - \frac{h}{10}\right) \left(\frac{h}{10}\right) \cos \phi$$

$$= \frac{4 (20 - h) h}{100. \sec \phi}$$

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$$= \frac{(20 - h)\,h}{25 \sec \phi}$$

$$= \frac{(20 - h)\,h}{2 \times 12 \sec \phi} \text{ aproximately } = \frac{(20 - h)\,h}{2 \times akṣa\text{-}karṇa}$$

To determine the correct time of the middle of the Eclipse –

प्राक् पश्चाल्लम्बनेनोनयुक्तं दिनगतं स्फुटम् । ३९$\frac{१}{२}$ ।

prāk paścāllambanenonayuktaṁ dinagataṁ sphuṭam |39½|

39½. If East, deduct *lambana* (parallax in longitude) from *dinagata* (i.e., *parvānta-dinagata,* or portion of day elapsed at the end of the *parva* or *amāvasyā);* if West, add *lambana* to *dinagata* (portion of day elapsed); the result will give the correct time for the middle of the Eclipse.

Notes.—(1) The effect of parallax upon a body is to depress it from the zenith in a vertical circle.

(2) If therefore the body is in the East, the time for the middle of the Eclipse will be earlier than what is indicated by the end of the *parva ;* and, if it is in the West, the time will be later than that so indicated. As the parallax in longitude gives this difference of time in either case, it is to be deducted from or added to the time of the end of the *parva,* according as the body is in the East or in the West.

To determine *nati* or parallax in latitude –

तन्नताक्षांशहीनः प्राक् सूर्य्यः खार्कोऽन्यथा युतः ॥ ४० ॥
तदिष्टचरषड्घातपलभाप्तेन संस्कृतात् ।
पलभोनाहतात् स्वाक्षात् द्विघ्नात्तत्त्वैर्हृता नतिः ॥ ४१ ॥

tannatākṣaṁśahīnah prāk sūryyah khārko 'nyathā yutah ||40||
tadiṣṭacaraṣaḍghātapalabhāptena saṁskṛtāt |
palabhonāhatāt svakṣāt dvighnāttatvairhṛtā natih ||41||

40 (Second half). If the Sun is in the East, deduct from its longitude the fifth part of the *nata* (hour angle) derived from the *sphuta-*

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dinagata ; otherwise (i.e. if the Sun is in the West) add to its longitude such fifth part. The result is (technically named) *khārka.*

41. Multiply its *cara (vināḍīs)* by 6; divide by equinoctial shadow ; take the fifth part of the quotient, deduct equinoctial shadow, and multiply the difference by equinoctial shadow ; correct this product by the quotient (obtained before); the result multiplied by 2 and divided by 25 gives *nati* (parallax in latitude).

Notes.—(1) The general formula for the parallax in latitude *(nati)* is

$$\frac{\pi}{\cos \lambda} (\sin Z' - \sin \lambda \cos Z)$$

where π is the horizontal parallax of the planet, λ is the latitude of the planet, Z the zenith distance of the planet and Z′ the zenith distance of the Nonagesimal *(lagna*—3 signs); if $\lambda = 0$, i.e. if the planet is on the Ecliptic, parallax in latitude becomes $\pi \sin Z'$. (See Sen Gupta, *Parallax in Hindu Astronomy).*

(2) In solar Eclipse, we are concerned with the difference of parallaxes in latitude of the Moon and the Sun, which is given by $\pi' \sin Z'$, where π' is the difference of horizontal parallaxes of the Moon and the Sun and is, as we have seen before, equal to (m—m′)/15, where m and m′ are the mean daily motions of the Moon and the Sun. The difference of parallaxes in latitude is therefore equal to $\frac{(m-m')}{15\ R} \times R \sin Z'$. The zenith distance of the Nonagesimal *(lagna*—90 degrees) is for approxamation replaced by the zenith distance of the *madhya-lagna* (the point of the Ecliptic which is on the meridian), as the difference between such zenith distances is very small (See *Sūryya-Siddhānta,* V, 7).

If δ be the declination of the *madhya-lagna* and ϕ the latitude of the observer's position, the zenith distance of the *madhya-lagna* is $(\phi \pm \delta)$, and the difference of parallaxes in latitude is

$$\frac{(m-m')}{15\ R} \times R \sin (\phi \pm \delta).$$

The value of (m—m′)/15 R = 1/70 *(Sūr. Sid.,* V, 11), when R = 3438′ ; it is 13/40 *(Khaṇḍakhādyaka,* V, 3-4), when R = 150 ; it

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is 731/1800=2/5 nearly (*Pañcasiddhāntikā*, VIII, 13), where R=120.

(3) The first part of the rule is taken up with the finding of the *madhya-lagna*. The successive steps are, assuming that the Sun and the Moon have the same longitude at the middle of the solar eclipse,—

(i) *Lagna* – *Graha* (Planet, Sun or Moon), in signs, etc., gives the longitude between *Lagna* and *Graha* (v. 39);

(ii) (*Lagna* – *Graha*) in signs, etc. × 5 = *dyugata* (part of day elapsed, i.e. the time taken by the Graha to rise from the horizon to its present position) = t, say (v. 39);

(iii) then *lambana* (parallax in longitude, say, p) is calculated (v. 39); this corrects the time for the middle of the eclipse;

(iv) *dyugata* – *lambana*, if the Sun is in the East, and *dyugata* + *lambana*, if the Sun is in the West, gives the correct time for the middle of the eclipse as seen by the observer from the surface of the Earth (v. 40) = t ∓ p;

(v) *nata-kāla* of the moment is derived therefrom in *ghaṭikās* as d/2 – (t – p) if the Sun is in the East, and as d/2 + (t + p) if the Sun is in the West (v. 40), which gives (in time) the hour angle (h) from mid-day to the corrected middle of the eclipse;

(vi) h/5 gives the *nata* in *rāśis*, which is the difference in longitude between the Sun and the *madhya-lagna* (the point of the ecliptic on the meridian) (v. 40);

(vii) Then, *Graha* (Sun, in the East) – h/5, or Graha (Sun, in the West) + h/5, gives the longitude of the *madhya-lagna*, which is technically called *khārka* (v. 40);

(viii) The declination δ of the *madhyalagna* is then found from the *cara* (c) of the *sāyana khārka*, the *cara* (c) being R tan ϕ tan δ (v. 41);

(ix) the zenith distance of the *madhya-lagna* is then obtained as ($\phi \pm \delta$); and finally the second part of the rule ought to give –

(x) the *nati* (difference of parallaxes in latitude of the Moon and the Sun) by the formula:

$$\frac{[m - m']}{15\ R} \times R \sin [\phi \pm \delta]$$

instead of which *Laghumānasa* gives the formula:

$$nati = \left[\frac{khārka\text{-}cara \times 6}{palabhā \times 5} - palabhā \right) palabhā \pm \frac{khārkacara \times 6}{palabhā} \right] \times \frac{2}{25}$$

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$$= \left[\left(\frac{R \tan \phi \tan \delta \times 6}{12 \tan \phi \times 5} - 12 \tan \phi \right) 12 \tan \phi \pm \frac{R \tan \phi \tan \delta \times 6}{12 \tan \phi} \right] \times \frac{2}{25}$$

$$= \left[\left(\frac{R \tan \delta}{10} - 12 \tan \phi \right) 12 \tan \phi \pm \frac{R \tan \delta}{2} \right] \times \frac{2}{25}$$

$$= [\, 12 (\tan \delta - \tan \phi) 12 \tan \phi \pm 5 \times 12 \tan \delta \,] \times \frac{2}{25}$$

if R = 120. The + or − sign is to be taken according as *khārka* is in the six signs beginning with *Tulā* or *Meṣa*. This formula can hardly be reconciled with $\frac{m-m'}{15\ R} . R \sin (\phi \pm \delta)$.

(4) Compare *Karāṇaprakāśa, Sūryyagrahaṇādhikāra,* vv. 1-4; *Karaṇakutuhalam, Sūryyagrahaṇādhikāra,* v. 3; and *Grahalāghava, Sūryyagrahaṇādhikāra,* v. 4.

To determine the true latitude of the moon at the moment of the (middle of the) Eclipse —

तात्कालिकेन्दुविक्षेपो युक्तो नत्यैकदिक्कया ।
हीनोऽन्यथा युतौ स्पष्टश्छादकोऽधस्थितो ग्रहः ॥ ४२ ॥

tātkālikenduvikṣepo yukto natyaikadikkayā |
hīno'nyathā yutau spaṣṭaśchādako 'dhasthito grahah ||42||

42. Add to or deduct from the latitude of the Moon at the time in question the *nati* (parallax in latitude), if they are of the same or different directions; the result will be the true latitude for the conjunction (solar eclipse in the case contemplated). The lower of the two planets is the eclipser of the other.

Notes.—(1) If the latitude and the parallax in latitude are both North or both South, they are to be added; but if one is North and the other South, the parallax in latitude is to be deducted from the latitude, to get the correct latiude for an eclipse.

(2) From the time of *Āryyabhaṭa* at least, it was clearly known that a lower planet obscures an upper planet, as placed from the Earth onwards, when the obscurer and obscuring planets are real planets. A lunar eclipse is however occasioned by the entry of the Moon in the shadow of the Earth.

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THE LIFE AND WORKS OF VYĀSARĀYA SVĀMIN

(1478–1539)

By B. N. KRISHNAMURTI SARMA

Vyāsatīrtha, Vyāsarāya or Vyāsarāya Svāmin, as he is variously called, has been mentioned as a disciple of Brahmaṇya Tīrtha. Chronologically after Jayatīrtha, he is the one outstanding personality among Vaiṣṇava Pontiffs of the school of Madhvācārya. The Vaiṣṇavism of Madhva had patronage in the courts of Kaliṅga, of Tulunāḍ and in the Ānegondi of Pre-Vidyāraṇya days, but the influence attained by Vyāsarāya at the court of Vijayanagar, eclipsed all earlier and later records, and stands by itself unique in history. It is thus briefly indicated in Vādirāja's *Tīrthaprabandha* :—

राजधानी जयति सा गजगह्वरसंज्ञिता ।
यत्र भान्ति गजा माध्वराद्धान्तधरणीधराः ॥ (III. 17)

Till the publication of the *Vyāsayogicarita,* the world had no idea of the art played by Vyāsarāya, in the history of Vijayanagar Empire.[1] Some of the older generation of scholars of S. Indian history were inclined to laugh at what they imagined to be an exaggerated estimate of him given by Mādhva tradition and dismiss it as a pious fabrication. But it is no longer possible to refuse to be convinced. The contemporary biography of Vyāsarāya[2] is before them and its account is in the main corroborated by such literary and epigraphic evidences as we are yet lucky to possess. Thanks to these, Vyāsarāya is and need no longer be a shadowy figure depending for his greatness upon the pious credulity and propaganda of his followers.

LIFE.

The most complete and reliable account of the life and career

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1. It is a great pity that no proper account of the life and achievements of Vyāsarāya has appeared even in the Vijayanagar Sexcentenary Commemora-Volume.

2. The *Vyāsayogicarita* of Somanātha Kavi, a Campu Kāvya, in 8 ullāsas, with elaborate English Introdn. and Notes, by B. Venkoba Rau, Bangalore Press, Bangalore, 1926.

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of Vyāsarāya is to be found in the biographical account of Somanātha.[3] The songs of Purandara Dāsa, a few inscriptions, and tradition, yield important particulars. We shall now sketch the life of Vyāsarāya, in the light of these sources :—

Vyāsarāya was born in or about 1460 A.D. in the village of Bammūr,[4] about six miles to the north of Sosale, in the Mysore District. His father Ballaṇṇa Sumati of Kaśyapa gotra was the youngest of the six sons of Rāmācārya. Being childless for long, he married a second wife Akkamma. By the blessings of Brahmaṇya Tīrtha of Cannapatna, he had three children born to him—a girl and two boys. The youngest was Yatirāja—the future Vyāsarāya. At the age of five, Yatirāja was taught the alphabet, and at seven he had his upanayana. Then four years he was at his Gurukula, whence he went home at the age of eleven. There he underwent a complete course of studies in Kāvya, Nāṭaka, Alaṁkāra and Grammar which must have covered at least a period four years.

Somewhere about this time, Brahmaṇya Tīrtha sent word claiming from Ballaṇṇa Sumati the fulfilment of a promise made by him and his wife before the birth of their children that they would make over their second son to him. After some hesitation on the part of the parents, the promise was duly fulfilled. Ballaṇṇa Sumati himself took his son to Channapatna, and presented him to Brahmaṇya and returned home.

Brahmaṇya Tīrtha was very much impressed with the superior attainments of his ward and was secretly meditating to ordain him a monk so as to enlist his genius to the cause of Vaiṣṇava Dharma. Somanātha says that the young Yatirāja divined the intention of Brahmaṇya and not being willing to commit himself made a bolt for his freedom, one day. He walked a long way off and feeling tired lay down to rest under a tree. While asleep he had a beatific vision in his dream in which God Viṣṇu appeared before him and instructed him in his duty. And the boy returned to the hermitage of Brahmaṇya. The incident is of importance as throwing some light on the probable age of Yatirāja at the time. He could not have been more than sixteen, to judge from the use of the phrase *śaiśavacāpalena* in the text of the *Vyāsayogicarita*. Not long after this incident, Brah-

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3. It is not therefore very clear what is meant by the statement in the *Madras University Historical Series, XI* that "no authentic information is available re. the early life and career of Vyāsa" (p. 322). Nothing has so far been discovered belying the facts narrated by Somanātha !

4. *Vyāsayogicarita*, p. 13. (Text).

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maṇya Tīrtha ordained his ward a monk and gave him the name of Vyāsatīrtha.

Vyāsatīrtha seems to have spent some time after his ordination in the company of his Guru. Some time after the great famine of 1475–76, Brahmaṇya Tīrtha died. We may therefore assume that Vyāsatīrtha came to the Pīṭha in or about the year 1478 A.D. Assuming that he was about 18 years old at the time of the demise of his Guru, we may easily fix the date of his birth in or about 1460 A.D.

It is obvious that V. had no time to study anything of Madhva-śāstra under Brahmaṇya. He was obliged soon after his assumption of the Pīṭha to go to Kāñcī, where he is said to have stayed for many years studying the six systems of Philosophy under the most eminent Pandits there. It was probably here that Vyāsatīrtha made his first-hand acquaintance with the systems of Śaṁkara and Rāmānuja—an acquaintance which stood him in such good stead in writing his great works : the *Nyāyāmṛta* and the *Candrikā*. After the completion of his studies at Kāñcī, he went over to the seat of Śrīpādarāya at Mulbāgal.[5] It was then a great centre of learning ; and there he spent many years in study and meditation. The studies had reference evidently to the Dvaita Vedānta as is clear not only from the fact that V. had already mastered the six systems at Kāñcī, but also from his own express acknowledgment to that effect at the end of his gloss on the *Upādhi-Khaṇḍana-Ṭīkā*[6]

.V. is believed to have read under Śrīpādarāya for nearly 12 years.[7] This seems to be a slight exaggeration in view of the fact that he was sent to the court of Sāluva Narasiṁha at Candragiri, by Śrīpādarāya,[8] just about the time of the usurpation of Vijayanagar by the second dynasty,[9]–which according to competent historians, happen-

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5. The facts that (1) V. is nowhere represented (in the biography of Somanātha) to have gone to Kāñcī at the bidding of Brahmaṇya (2) or visited him on his return from that city, clearly indicate that Brahmaṇya's demise must have taken place a few years earlier than his disciple's departure for Kāñcī.

6. लक्ष्मीनारायणाख्यात् द्वैतिकुलतिलकादधीतमध्वशास्त्रामृतेन व्यासयतिना विरचिता मन्दारमञ्जरी समाप्ता (Colophon).

7. Such is the view expressed by the late Vidyāratnākara Svāmī of Vyāsarāya Mutt, quoted in the Introd. to the *Vyāsayogicarita*, p. lxx III.

8. Not by Brahmaṇya Tīrtha as we find stated on pp. 321-2 of the Madras Uni. His. Ser. XI.

9. This seems to be indicated by the curious fact that V. goes straight to Candragiri though Śrīpādarāya merely advised him to go to "the King's Court."

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ed about 1485-86. We have therefore to cut short V.'s stay and studies at Muḷbāgal to five years, which is a reasonable period.

The latter part of the IV chapter of the *Vyāsayogicarita* gives a brilliant account of the arrival of V. at the court of Sāḷuva Narasiṁha at Candagiri and his grand reception there. Here he spent many years, honoured and worshipped by the King—"as Dattātreya was by Kārtavīrya" (p. 40). Here he met and vanquished in intellectual tournaments many leading scholars of his day and conducted debates on such standard treatises on Logic as the *Tattvacintāmaṇī*. There is reason to believe that it was during this period that V. was entrusted with the worship of God Śrīnivāsa on the hill at Tirupati.[10] Tradition says that he continued to worship at Tirupati for 12 years (1486–98). His South Indian tour must have been undertaken during this period when he was in the habit of quitting Tirupati for short intervals, entrusting the worship to some disciples.[11]

It appears from Somanātha's account that V. did not quit Candragiri for a while after 1498. He evidently stuck to Sāluva Immadi Narasiṁha, the son and successor of Sāluva Narasiṁha, till Narasa became the *de facto* ruler of Vijayanagar soon after the settlement which he concluded with Tamma-rāya in 1498 (see Proddatūr 386 of 1904)–one of the terms of which was perhaps the establishment of V. as the spiritual adviser and Guardian Angel of the Kingdom.[12] However that may be, V. left for Vijayanagar in or about 1498 A.D. "at the pressing and persistent invitation of Narasa's ministers" (p. 54, lines 1-2 Text), and made it his permanent residence for practically

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The terms in which V. commends Sāluva Narasiṁha when he first meets him (pp. 49-50 Text) also show that the latter's victorious campaign through S. India had come to a close by then.

10. Certain special honors shown to the Mutt of V. at Tirupati, the presence of a Vyāsarāya Maṭha on the hill and certain inscriptions on its walls as well as allusions in certain Songs of V. can be adduced as proofs of his having been entrusted with the worship.

11. See B. Venkoba Rau's Notes to the *Vyāsayogicarita*, p. 18.

12. Such is at any rate the interpretation put by Mr. Venkoba Rau on the words of Nuniz that "after this (settlement) was done, he (Narasanaque) told the King (Tammarāya) that he desired to go to Bisnāga, to do certain things that would lead to the benefit of the kingdom and the king, *pleased at that*, told him—so it should be" (Introd., XVII–XVIII). He also thinks that simultaneously with Narasa's campaigns between 1499–1500 V. started his reform of installing the 732 Hanuman idols in different parts of the Kingdom, beginning with the Yantroddhāra Hanuman at Hampi (Introd. XIV, XVIII). Cf. also p. 323 of *Studies in the III Dynasty of Vijayanagar* (Madras Uni. His. Ser. XI.).

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the rest of his life. His entry into Vijayanagar and installation as the Guardian Saint of the kingdom are described in chapter V of Somanātha's biography. This place of honor given to V. was not confirmed without a challenge. Learned men from various parts of India came to challenge him to meet them in a public disputation. Led by Basavabhaṭṭa of Kaliṅga they pinned their 'challenges' (*Birudapatrikās* Text) to the palace pillars. The challenge was promply taken up and V. met the opposing team of scholars and vanquished it completely after a protracted debate lasting for thirty days (p. 61, Text).

When Narasa was succeeded by Vīranarasiṁha, the position of V. remained the same at the court. Somanātha appears to say that it was during the reign of Vīranarasiṁha that Vyāsarāya started composing his great works : the *Candrikā, Tarkatāṇḍava* and *Nyāyāmṛta.*[13]

The accession of Kṛṣṇadevarāya in 1509, opened up a new chapter in the glory of V.—a chapter far more brilliant than any that had gone before. The Rāya had the greatest regard and respect for V. whom he regarded as nothing less than his कुलदेवता. With thrilling emotion does Somanātha write :—

यावन्तो विषया हृता भुजबलं यावत्सपत्ना जिता
यावन्तश्च वदान्यता करसरोजाताश्रया यावती ।
यावत्यो धनसम्पदो गुणगणो यावांश्च यावद्यशः
तावत्कर्तुमियेष पूजनमसौ श्रीव्यासभिक्षो नृपः ॥

(p. 71. Text).

V. had already obtained by 1500, the honor of a green flag on a camel as a mark of respect from the Sultan of Bijāpur (p. XV, Introd. to Vy.-carita).[14] "In 1511 A.D. he obtained from the king, the village of Pulambākkam in the Padaivīḍu-rājyam, for conducting the Āvaṇi festival in his own name, of God Varadarāja at Kāñcī, and also the

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13. This is the order in which Somanātha has named the three great works of V. (pp. 64–5). But there is indisputable evidence to show that the *Nym.* was written *before* the *Candrikā* (see pp. 955, 984 of *Candrikā* Bombay 1913) and the *Tarkatāṇḍava* before the *Candrikā* (see p. 68 f. of *Candrikā*).

14. It may be remarked in passing that the honor of the green flag and a drum on the back of a camel is kept up to this day in the Maṭha of Vyāsarāya Sosale by the successors of V. The *Sāluvābhyudayam* says that Narasiṁha took the honor of the green umbrella in one of his campaigns against the Sultans. A camel corps furnished by one of his feudatories is also mentioned in the same context.

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king's sanction for presenting a Śeṣavāhana of gold which had to be used as a vehicle for the God on the fourth day of all festivals (No. 370 of 1919, Epigr. Rep., 1912-20, Madras).

In an inscription on the Southern wall of the maṇṭapa in front of the Viṭṭhalasvāmi temple at Hampi, which records a grant to the temple in 1513 A.D. by Kṛṣṇadevarāya, V. is referred to as "the Guru" without any prefix whatever **विनियोग नानावर्गद नैवेद्य सह गुरुगलु व्यासरायरिगे पालु ॥** (S.I.I., IV, no. 48 of 1889).

Another inscription in 1514, recording a grant to the Kṛṣṇasvāmi temple at Hampi remarks *inter alia* that after installing the image of Kṛṣṇa, which he brought from Udayagiri, at Vijayanagar, the Rāya appointed Rāmaṇṇācārya and Muḷbāgal Timmaṇṇācārya as Arcakas. The names are undoubtedly those of Mādhva Brahmins. V. himself in one of his Kannaḍa songs, sang of the advent of Bālakṛṣṇa from Udayagiri (see Vyāsarāyara Kīrtanegaḷu, Udipi, no. 60).

Subsequent to the Rāya's return from Koṇḍavīdu there was another grant to V. in 1516.

Towards the close of chapter V, Somanātha describes a significant episode in the life of V. Soon after his return to the capital from the Kaliṅga war (1516) and his treaty with the Gajapati, Kṛṣṇadevarāya one day, rushed to the presence of V. with a work on Advaita Vedānta,[15] sent for criticism by the Kaliṅga ruler. He further says that the Kaliṅga king Vidyādhara Pātra had sent the work to Kṛṣṇarāya through his commander-in-chief at the instigation of some self-conceited Pandits of his court with a haughty challenge that it may be shown to V. and inviting him (V.) to refute it if he could.[16] The challenge of the Kaliṅga king was in effect a challenge to the imperial dignity of the Rāya himself and to his dualistic leanings. And if in trying to defend these, the Rāya ran to Vyāsarāya, it only shows how indispensable he was to him.

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15. This is clear from the nature of the adjectives employed :—
स्वामिन्, प्रतिभटवादिविजयेषु भगवद्वचोभिः पलायितमिव स्वदेशे गूढं चरन्तं, सच्छास्त्रं सुत्रामजालस्य, प्राणभूतं मायामतस्य, तत्वं व्यामोहकशब्दाभिधेयस्य, भूतिमनृतस्य दुष्टपक्षं बन्दिग्राहकमिव गृहीत्वा..... (p. 70).

16. विद्याधरपात्रनामा कलिङ्गाधिपतिः कैश्चिदहंयुभिर्विपश्चिद्भिः प्रचलितोत्साहः शुकनीडाकारायां पुस्तिकायां आबध्य, भगवते व्यासयोगिने प्रदर्शनीयोऽयं दुस्तरयुक्तिविस्तारितो महाग्रन्थ इति स्वसेनापतिकरे मह्यं प्रैषिषत्। तदवश्यं तमेतं कतिपयैरेव दिनै र्दुर्लंघ्याभि र्वचोयुक्तिभि र्भगवान् शरद्वलाहकमिव झंझाभिः शकलीकर्तुमर्हति इति पुस्तिकां सन्निधौ सन्दर्शयामास ॥ (p. 70).

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Unfortunately Somanātha has not given us the name of the work which was thus despatched to V. Among the works of V. however the only one which answers to the requirements of the case is the short polemical tract called *Bhedojjīvana.* The original sent down to him from the Kaliṅga Pandits might therefore be presumed to be one to which the *Bhedojjīvana* was a reply. From certain remarks let fall by the celebrated Logician Vāsudeva Sārvabhauma at the end of his commentary on the *Advaitamakaranda* of Lakṣmīdhara (of which a Ms. is noticed by Rājendra Lal Mitra in his catalogue) it appears that he lent his willing cooperation to the Gajapati ruler Kūrma Vidyādhara in devising ways and means of humiliating Kṛṣṇadevarāya of Vijayanagar :

कर्णाटेश्वरकृष्णरायनृपतेर्गर्वाग्निनिर्वापके
अत्र न्यस्तभरोऽभवद्गजपतिः श्रीरुद्रभूमीपतिः ।
तस्य ब्रह्मविचारचारमनसः श्रीकूर्मविद्याधरस्या-
नन्दो मकरन्दशुद्धिविधिना सान्द्रो मयायं ततः ॥

It was evidently some *other* work of this Vāsudeva Sārvabhauma, if not his commentary on the *Advaitamakaranda,* that formed the subject of the challenge referred to by Somanātha. It is worthy of note that the name of Kṛṣṇarāya's rival mentioned by Somanātha answers more or less closely to the one referred to by Vāsudeva in the above verse. Here then, is interesting light thrown on the historical authenticity of the incidents recorded by Somanātha. Apparently the Kaliṅga king wanted to outshine Kṛṣṇarāya not only in military prowess but in literary glory also.

Before starting on his Raichur expedition in 1520 the Rāya performed a **रत्नाभिषेक** for V. (pp. 71–5 of the Text). In 1526 V. received the village of Beṭṭakoṇḍa from the King. This was renamed Vyāsasamudra after the big lake which he caused to be dug there.[17] There are two earlier epigraphs of which the one dated 1523 (Svabhāmu) records the grant of the village of Brahmaṇyatīrthapura to V. He however gave it away to Brahmins. The grant of 1524 is recorded on a stone in front of the Vyāsarāya Maṭha at Tirupati, showing probably that V. was then at Tirupati praying to God Śrīnivāsa[18] during the

17. It is referred to by Purandara Dāsa in one of his songs :—
देशाधिपगे वन्द क्लेशंगल कलदु सिंहासनवनेरिमेरेदि जगवारिय व्यासाब्धियन्नु कट्टिसि, देशदोलगेल्ल ॥
(p. 16) (Song no. 20, Mādhvabhajanamañjarī, K. Bhandappa, Dharvar 1932).

18. See Song of V. to Śrīnivāsa (no. 53, Udipi).

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dreaded period of Kuhu-yoga. It was presumably after the great Kuhu-yoga of 1524 that Vyāsasamudra was granted to V.[19] It is clear from Somanātha's account that V. moved away for some time to his retreat at Beṭṭakoṇḍa—presumably during the period of "temporary estrangement" from the Rāya when Aḷiya Rāmarāya was at the helm of affairs.[20] The Rāya seems to have gone on a pilgrimage and returned by 1527 to his capital where he made another grant to V. (Shimoga 85), the terms of which imply that V. was completely restored to his former position in the estimation of the King :—

निगमागमनिर्णीतनिजराधीशमन्त्रिणे ।
नृपेन्द्रमुकुटीरत्ननीराजितनिजाङ्घ्रये ॥
निरहंकारचित्ताय नीतिमार्गोपदेशिने ।
शेषाय नरवेषाय शिक्षितान्तरवैरिणे ॥
पुराणपुरुषध्यान पुण्यत्पुष्कलमूर्तये ।
मध्वाचार्यमतांभोजमार्तांण्डायिततेजसे ॥
ब्रह्मण्यतीर्थशिष्यायब्रह्मनिर्मलमूर्तये ।
व्यासतीर्थयतीन्द्राय विद्वद्दिन्दीवरेन्दवे ॥

Somanātha goes on to say that after the death of Kṛṣṇadevarāya (1530), Acyutarāya continued to honor V. for some years. It was in Acyuta's reign that the image of Yogavarada Nṛsiṁha was set up by V. in the courtyard of the Viṭṭhaleśvara temple at Hampi in 1532. Seven years later, V. passed away at Vijayanagar on the fourth day of the dark fortnight of Phālguna of Vilambi, coresponding to Satur-

19. It was during one of these Kuhuyogas that tradition says that V. himself ascended the throne of Vijayanagar to save his disciple Kṛṣṇarāya from peril. The appellation व्यासराज and the custom of "Dīvaṭṭigesatam" which is, to this day observed at the Sosale Mutt when the Svāmi seated on his throne is hailed at a daily darbar every evening as the "Lord seated on the Vijayanagar Karṇāṭaka Siṁhāsana" serve to keep in memory the forgotten past. Purandara Dāsa also has referred to the occupation of the Vijayanagar throne temporarily by Vyāsarāya (vide song q. in f. n. 17 above.)

20. The period between 1524-26 was a gloomy one. Taken ill, the Rāya was presumably forced to abdicate in favour of his son Tirumaladevarāya in or about 1524 (Ep. car. Bglore, Mayadai 82), and after his death in 1525, to take his brother Acyuta as Regent (Vy. carita, p. 76). The once popular view that the Rāya died in 1524 cannot be upheld as it is definitely set at nought by many inscriptions of a subsequent date.

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day, the 8th March 1539 A.D.[21]. His mortal remains lie entombed at Navabṛndāvana, an island in the Tuṅgabhadrā, about half a mile east of Ānegondi.

II

Vyāsatīrtha was almost the Second Founder of the System of Madhva. In him the secular and metaphysical prestige of the religion and philosophy of Madhva reached its highest point of recognition. The strength which he infused into it through his labours and personality has contributed in no small measure to its being even to-day a living faith in S. India. The learned Appayya Dīkṣita is reported to have observed that the great V. 'saved the melon of Madhvaism from bursting, by securing it with three bands in the form of his three great works : the *Nym.*, *Tarkatāṇḍava* and *Candrikā*". These showed to the world that the followers of Madhva can more than hold their own against the best intellects of India in the field of Logic and Metaphysics —Nyāya, Mīmāṁsā, Vedānta etc. There is a tradition that when the North Indian Logician Pakṣadhara Miśra visited South India, he had spoken very highly of V :—

यदधीतं तदधीतं यदनधीतं तदप्यधीतम् ।
पक्षधरविपक्षो नावेक्षि विना नवीनव्यासेन ॥

With all his accomplishments, V. was not a mere doctrinist. He was essentially large-hearted. He was at home on the naked peaks of the intellect and intuition as in the depths of Religion, love, and devotion to God. His religion of service, sympathy and effort (Vide Kīrtane no. 55 of Uḍipi) was a direct corollary to his Philosophy. By its side, the homage of Madhusūdana Sarasvatī : "वंशीविभूषितकरात्..... कृष्णात्परं किमपि तत्त्वमहं न जाने" (at the end of the disquistion on the निराकारब्रह्मवाद) turns out to be little more than hollow sentimentalism in one whose highest Brahman is characterless !

If the Kings of Vijayanagar were models of religious toleration, we have not a little to thank V. for it. While his influence lasted, he could easily have feathered his own nest and seen to the religious and

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21. The date is given by Purandaradāsa, in one of his songs which is quoted by Kittel in his *Nāgavarmana Chandassu* (1875, p. lxii):—

विलम्बिवत्सरदल्लि विजयनगरदल्लि फल्गुन चतुर्तियल्लि स्थिरवारदल्लि ॥

The author of the Madras Uni. His. Ser. XI. feels rather vaguely that V. "appears to have breathed his last a *little later*" than 1532 !

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political domination of the men of his sect. But he despised such ambitions. He was scrupulously just and fair in his dealings and treatment of others. He treated Basavabhaṭṭa whom he vanquished in debate, with exemplary kindness and regard.[22] He could easily have created a monopoly of worship for the men of his faith at Tirupati during his sojourn there, but he did not. He was no inciter of hatred against Śiva though personally a staunch Vaiṣṇava. He had himself composed a stotra in praise of Śiva[23] and to this day a special service is held in the Vyāsarāya Maṭha at Sosale on the night of the Mahā-śivarātri when the Śiva-liṅga said to have been presented to V. by Basavabhaṭṭa of Kaliṅga,[24] is worshipped. He allowed his preachings to take their gentle course of persuasion and disliked proselytisation for the sake of numbers. He did not misuse his influence with the Kings to make his faith the state-religion. This attitude deserves to be contrasted with that of the Śrīvaiṣṇavas reported in the *Prapannāmṛta* :—

श्रीवैष्णवे विरूपाक्षे प्रशासति महीमिमाम् ।
आसन् श्रीवैष्णवाः सर्वे यथा राजा तथा प्रजाः ।
विरूपाक्षाभिधा मुद्रा * * *

But in V.'s days Virūpākṣa was the tutelary deity of the Kingdom side by side with Viṭṭhala, and the Seal of Virūpākṣa instituted by Vidyāraṇya was still in use. It is then a very unfair estimate of V. that we have in the *Madras University Historical Series* No. XI, that "in spite of the efforts of V., Mādhvaism did not evoke *popular enthusiasm*. The *only contribution* which it made to religion was to give an *exaggerated importance to the worship of Hanuman*. A few Brahmins and fewer nobles, accepted the teachings of Madhva" (p. 323—Italics mine). The message of V. was addressed to the thoughtful among men and the really sincere among the people. His mission had two sides—a religious and a philosophical one. And it is sufficient to say that in both these fields the impression he had made was both profound and lasting and destined to lead to far-reaching consequences. We shall have something to say of his labours in the domain of Philosophy, anon. It may be pointed out here, that V. was a Psalmist in Kannaḍa—and has himself composed many beautiful songs in the language of his native province—Kannaḍa, a fact of which absolutely no mention has been made by the writer of *Madras Uni. His. Series* No. XI. More

22. See *Vy. carita*, p. 61.
23. *Laghu-Śiva-stuti*, Belgaum, 1931.
24. See Venkoba Rau, introd. *Vy. Carita*, p. CXXV.

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than even for his own compositions, his name would have to be invested with special siginificance as that of the person who gave India a Purandara Dāsa and a Kanaka Dāsa, both disciples of V. Those who know anything about the history of the Dāsa Kūṭa and how much Kannaḍa Literature is indebted to these great poets of Karṇāṭaka, will have no difficulty in realising the vastness of the service rendered by V. to the cause of "popular religion"; for no one can deny that the Dāsas "evoked popular enthusiasm" for the philosophy of Madhvācāya. Their influence on the ethical uplift of the masses is too well-known to need elaboration here.

Nay, the influence of V. was felt far beyond the limits of Karṇāṭaka—in the heart of distant Bengal. It is now fairly well-known, though no reference is made to it in the *Madras Uni. His. Series* No. XI, that the Bhakti Movement of Caitanya who flourished wholly within the lifetime of V., owed a good deal of its inspiration to the philosophy of Madhva, and its exposition by V.[25] A section of the followers of Caitanya goes so far as to claim that Caitanya himself comes of a line of asceties from Madhva through Rājendra Tīrtha and V. Caitanya's biographer Kavikarṇapūra speaks reverently of the three great masterpieces of V. (the Vyāsa-traya as they are traditionally known—viz., the *Nym., Tarkatāṇḍava* and *Candrikā)* as the Viṣṇu-Saṁhitā !

व्यासतीर्थस्तस्य शिष्यो यश्चक्रे विष्णुसंहिताम् ॥ If properly viewed, the influence of V. would be seen to have brought about a glorious religious renaissance in the XVI century,[26] simultaneously in the North and in the South of India ! Of his place in the domain of Indian Philosophy we shall say something in the next section. Historical scholarship must indeed be blind and bankrupt if it could discover in V.'s life and mission nothing more enduring than "an exaggerated importance to the worship of Hanumān", and the erection presumably of a few temples to that god !

The Works of Vyāsarāya.

V. wrote eight works in all. His major and most important works

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25. The doctrine of गुणगुण्यभेद in God, emphasised by Rūpa Gosvāmin in his *Laghubhāgavatāmṛta,* the concept of Viśeṣa, the supremacy of Viṣṇu and the exaltation of Bhakti as the highest means of release, adopted by the followers of Caitanya, are directly the result of the teaching of the school of Madhvācārya.

26. Which indubitably sowed the seeds of the great Devotionalistic renaissance in the Mahārāṣṭra under Tukārām and his contemporaries in the next.

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are three[27], the *Nyāyāmṛta, Tarkatāṇḍava* and *Candrikā,* collectively called व्यासत्रय। Among his minor works, the first place is to be given to the *Bhedojjīvana.*[28] Next come his learned and highly abstruse commentaries on the खण्डनत्रय and the *Tattvaviveka.* A *Granthamālikā-Stotra* giving a list of the 37 works of Madhva, is also ascribed to him in the catalogue of the T.P.L., and published in the S.M. (382–3). The oft-quoted verse : श्रीमन्मध्वमते हरिः परतरः....." embodying the principal tenets of Madhva is also traditionally ascribed to him. It is quoted by Baladeva Vidyābhūṣaṇa in his *Prameyarlnāvali,* as an ancient verse(तदुक्तं प्राचा), and he has also given a parallel verse of his own : श्रीमध्वः प्राह विष्णुं परतमं....." All the above mentioned works of V. have been printed.[29]

(1) The *Nyāyāmṛta*

In this, his *magnum opus,* V. undertakes a complete vindication of the philosophical power and prestige of the dualistic metaphysics of Ānandatīrtha, together with a discussion of its concomitant problems. The work is divided into four chapters or *Paricchedas.* The first discusses the central idea Monism—the unreality of the world and goes into the various proofs (प्रमाण) upon which it is sought to be based. Such doctrines of the Advaita as have a direct bearing upon this thesis of the falsity of the world like the doctrines of degrees of reality, Adhyāsa (कर्तृत्वाध्यास, देहात्मैक्यभ्रम), Anirvacanīyatā etc., are fully thrashed out. The various definitions of मिथ्यात्व (the concept of unreality) propounded by Advaitins, are analysed and refuted. The four Types of "Hetus" in the familiar विश्वमिथ्यात्वानुमान are then criticised. The sanctity of प्रत्यक्ष and its inviolability through Anu-

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27. The *"Sudhā"* is NOT one of the works of V. as we have it in the Madras Uni. His. Series no. XI (p. 424) ! nor did V. "comment upon several upaniṣads such as the *Chāndogya* and the *Māṇḍūkya* etc." (ibid.). The *Sudhā* is a work of Jayatīrtha and the comm. on the Upaniṣads were written by the earlier V. who was a pupil of J. The author of the Nym. generally describes himself as "Vyāsayati", disciple of either Brahmaṇya Tīrtha or of Lakṣmīnārāyaṇa Tīrtha.

28. Wrongly attributed to Vādirāja in Rice's Catal.

29. The Editor of the T.P.L. Cat. is mistaken in his statement that *Bhedojjīvanam* and the gloss on the *Upādhikhaṇḍana* are yet to be printed.

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māna and Āgama, are upheld. The अपछेदनय of the Pūrva Mīmāṁsā and its repercussions on the controversy of प्रत्यक्ष vs. आगम, are then made clear. Certain representative texts of Monism are reinterpreted. The doctrines of दृष्टिसृष्टि, एकजीवाज्ञानवाद, भावरूपाज्ञान (Citsukha) and the question of its locus, the divergent views of the *Bhāmatī* and the *Vivaraṇa* on this point, are elaborately dealt with.

The second Pariccheda opens with a refutation of the concept of अखण्डार्थ and its application to Upaniṣadic texts (लक्षणवाक्यs). Advaitic doctrines like those of निर्गुणत्व, निराकारत्व, स्वप्रकाशत्व, and अवाच्यत्व of the Brahman are repudiated and their theistic opposites upheld. Difference (भेद) is shown to be real, cognisable and characterisable with the help of Viśeṣas. Madhva's scheme of five-fold difference (पञ्चभेद) is shown to have the sanction and support of the three Pramāṇas. The ideas of the material and efficient causality of Brahman are shown to be devoid of any real sense on the Advaitic view. The doctrine and concept of identity (ऐक्यं) are closely examined and shown to be unintelligible, impossible. The chapter winds up with a discourse on the atomicity of the soul (Dvaita view).

The third chapter is devoted to a critical examination of the part played by the various means of Realisation : श्रवण, मनन, religious instruction, self-discipline, etc. expediting God-realisation.

In the fourth and last Pariccheda is elucidated the doctrine of Mukti as understood by Madhva. Other views of Mokṣa are criticised with a good grasp of details. The Advaitic view of release as being identical with cessation of Avidyā is refuted. The prospect of a characterless bliss is shown to be utterly devoid of all motive-force for human effort towards salvation. The doctrine of Jīvan-mukti is next examined. As against the Viśiṣṭādvaitin, the author maintains that gradation of bliss does obtain in Mokṣa and must do so in view of certain logical necessities and scriptural admissions and sanctions.

The *Nyāyāmṛta* (Nym.) is thus a Novum Organon of Dvaita polemics. V. was not merely the founder of the new Polemics of his school but the fountain-head of the entire controversial literature of the Dvaita-Advaita schools subsequent to him. His work has been the starting point for a series of brilliant controversial classics whose composition and study have been the chief occupations of the intellectuals of the three succeeding centuries.[30] "It was V. who *for the first*

30. The challenge thrown out by V. was taken up and answered by Madhu-

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time took special pains to collect together from the vast range of Advaitic literature all the crucial points for discussion and arrange them on a novel yet throughly scientific and systematic plan.[31]" He has exhibited in his work more than a hundred *points d'appui* and has "discussed them with a minuteness of observation and mastery over details rarely to be found even among some of the Titanic Thinkers of the past."[32] A glance at the table of contents of the *Nym.* would give a sufficient idea of the stupendousness of the task attempted and achieved by V. He has kept himself well within the bounds of the main problems of the contending systems. He is unsurpassed in the careful handling of Texts, acuteness of scholarship and range of study of the works of various systems of thought. He has freely laid under contribution the principles of interpretation and dialectics enunciated and developed in the standard treatises of the Nyāya-Vaiśeṣika, Mīmāṁsā and grammatical schools. The following are some of the important authors and works of other systems cited in the *Nym* :—

1. Nyāyakusumāñjali
2. Bauddha-dhikkāra
3. Bhāratī Tīrtha
4. Iṣṭasiddhi
5. Khaṇḍanakhādya
6. Mādhyamaka Kārikās
7. Mahābhāṣya
8. Nyāsa
9. Nayaviveka
10. Padamañjarī
11. Sureśvara Vārttika (Bṛh. Up.).
12. Siddhitraya
13. Śaṁkara's bhāṣya on the B.S.
14. Ṭup Ṭīkā
15. Tattvapradīpikā (Citsukha)
16. Upadeśasāhasrī

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sūdana Sarasvati in his *Advaitasiddhi.* The views of Madhusūdana were refuted by Rāmācārya in his *Taraṅgiṇī* (beg. 17th cent.). This was answered by Brahmānanda Sarasvati which again was refuted by Vanamāli Miśra in his *Saurabha* (end of 17th cent.).

31. MM. Anantakṛṣṇa Sastri, Introd. to the *Advaita Siddhi,* Calcutta Oriental Series, no. IX, 1934. p. 36.

32. Ibid.

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17. Vedāntakaumudī
18. Vivaraṇa
19. Ānandabodha.

Vyāsarāya's work is not a mere summary of the teachings of his predecessors. It is nothing short of what it claims to be—a Novum Organon, in the history of Dvaita thought :—

विक्षिप्तसंग्रहात्कापि क्वाप्युक्तस्योपपादनात् ।
अनुक्तकथनात्कापि सफलोऽयं श्रमो मम ॥

In the true spirit of a philosopher, the author goes on through a long and arduous process of thought-dissection to show that the thesis of Monism cannot be proved and that there is no philosophical justification for rejecting the reality of the world that is established by all known means of proof and knowledge. In doing all this, he has nowhere exceeded the bounds of strict philosophical calm, dignity and equity. Nowhere has he indulged in digressions—nowhere have his criticisms degenerated into cavil or calumny. In this respect he has shown himself to be far superior to his critic Madhusūdana Sarasvatī who has many a time in his work fallen a prey to the temptation of the invective rhetoric. Vyāsarāya's work acted as a leaven upon all analytic philosophy in the Vedānta and was directly responsible for the birth of Neo-Advaita and for this no small credit is due to him.

(2) *Tarka-Tāṇḍava*

While ever ready to make free use of the categories and thought-measuring devices of the Nyāya-Vaiśeṣika in its fight with Monism, the school of Madhvācārya has its own differences with the former.[33] These have been made clear by Madhva himself in his AV. and other works and by Jayatīrtha in his NS. In his own inimitable way, Vyāsatīrtha has undertaken a thorough and up-to-date examination of the points of difference between his school and that of the Nyāya-Vaiśeṣikas. This examination is embodied in the *Tarkatāṇḍava* which criticizes the views expressed in such standard treatises of Nyāya school as the *Kusumāñjali* of Udayana the *Tattvacintāmaṇi* of Gaṅgeśa and in the commentaries of Pakṣadhara, Pragalbha, Yajñadatta etc.

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33. Such as, for example, the question of (1) the personality of God; and its constitution; the nature and number of divine attributes, (2) the eternality of sound; (3) प्रामाण्य whether "Svataḥ" or "Parataḥ" the eternality and authorlessness (अपौरुषेयत्व) of the Vedas etc. The views of the Bhāṭṭa and Prābhākara Mīmāṁsakas also are examined and refuted.

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Tradition has it that the contemporary scholars of the Nyāya-Vaiśeṣika were first loudest in their laudation of V. for his famous attack on Advaita in his *Nym.*, but that they grew restive and silent all of a sudden when he came out with his *Tarkatāṇḍava,* which was directed against themselves. They are said to have voiced their indignation and disapprobation by an oft-quoted line :—

न्यायामृतार्जिता कीर्त्तिः ताण्डवेन विनाशिता ॥

7034

Only parts of the work were originally published from Kumbakonam in 1905. The authorities of the Govt. O. L. Mysore have latterly undertaken to publish the whole of it together with the illuminating commentary of Rāghavendra Svāmin. Two volumes of he publication have already appeared[34] and the rest are soon expected.[35]

The work is divided into three Paricchedas corresponding to the three Pramāṇas recognised in the system of Madhva. The author correlates his comments and criticisms with the views formulated in the VTN. and its Ṭīkā(by Jayatīrtha), the NS. and the *Pramāṇapaddhati.* The first chapter is divided into six sections entitled : (1) Veda-prāmāṇyavāda ; (2) Vedāpauruṣeyatvavāda ; (3) Īśvara-vāda ; (4) Varṇanityatvavāda ; (5) Samavāyavāda ; and (6) Nirvikalpakavāda. The first section discusses the various definitions of the self-validity of knowledge, V. formulating as many as three Siddhānta-definitions of it and criticising those propounded by Gaṅgeśa and his commentator Pakṣadhara Miśra. (p. 30, Mysore Edn.). After advancing syllogistic proofs in support of the स्वतस्त्व of Prāmāṇya, admitted by the Dvaitin, the author goes on to refute all the recorded objections to it offering in his turn fresh objections to and criticisms of the doctrine of the extraneous validity (परतस्त्व) of knowledge upheld by such writers as Gaṅgeśa, Pakṣadhara, Yajñapati Upādhyāya (p. 157, 166, and 215) and Pragalbhācārya (p. 166), alias Śubhaṅkara. The exraneous character of invalid knowledge is also dealt with. The secona section in the first chapter is the Īśvara-vāda, wherein the establishment of the Vedas and criticises the doctrine of divine authorship of the Vedas (ईश्वरकृतत्व) held by the Nyāyavaiśeṣika. The most important section in the first chapter is the Īśvara-vāda, wherein the establishment of God on the basis of pure reasoning is hotly disputed and shown to

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34. Between 1932-35.

35. B. Venkoba Rau in his Introd. to the *Vyāsayogicarita* observes that the opening verse in the *Tarkatāṇḍava* addressed to God Aprameya shows that it was presumably composed at Matur in the Channapatna Dt.

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be impossible. In this connection the author has cited all the 'eight points' of Udayana (raised in chap. V of the *Kusumāñjali)* and has refuted them together with their explanations attempted by Vardhamāna Upādhyāya.[36] The next section seeks to establish the eternality of sound on the basis of perception, inference and revelation and refutes the doctrine of their non-eternality held by the Naiyāyikas, and after that the concept of Samavāya. The last deals with indeterminate perception which is similarly dealt with.

The second Pariccheda establishes Śakti which is one of the ten categories recognised in the Dvaita system after considering the various objections brought forward by the Logicians against its recognition as a distinct padārtha. The other subjects dealt with are (1) Jāti and (2) the conception of Vidhi (injunction) and what constitutes its essence.

(3) The *Tātparya-Candrikā*[37]

The *Tātparyacandrikā,*[38] more familiarly known by its shorter title of *Candrikā,*[39] is a controversial commentary on Jayatīrtha's *Tattvaprakāśikā,* and thus belongs to the Sūtra-prasthāna of the Dvaita Vedānta. It is later than both the Nym.[40] and the *Tarkatāṇḍava,*[41] as can be seen from references to them in it. Though going by the modest title of a commentary it is in reality an original contribution of the author, to the subject of the Philosophy of the Sūtras of Bādarāyaṇa through a comparative study and criticism of the Bhāṣyas of Śaṁkara, Bhāskara, Rāmānuja and Yādavaprakāśa and of the super-commentaries *Pañcapādikā* and *Vivaraṇa,*[42] *Bhāmatī, Kalpa-*

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36. A quotation from his *Tattvabodha* on the *Nyāyasūtras* occurs on p. 279 vol. 2, of the *Tarkatāṇḍava.*

37. Published by T. R. Kṛṣṇacarya of Kumbakonam, with two com. (Nirnayasagar Press, Bombay). Another edn. (incomplete) was issued from Mysore (Govt. O. S.) in four parts.

38. Not *"Tātparyasaṁgraha"* as we find it mentioned on p. 238 of the Vijayanagar Sex. Com. Vol., 1936.

39. These are not two different works as fancied by V. Rangacharya (Ins. Madras Presidency, Vol. i, p. 308) ; the work is not known as *"Madhvatātparyacandrikā"* as stated on p. 424 of the *Madras Uni. His. Series no. XI.*

40. See *Candrikā* II, 3, Adh. 14, p. 955 (Kumb.) ; p. 18b, line 4 ; and II, 3, Adh. 19, p. 984.

41. P. 68, line 1, Comm. of Rāghavendra on *Candrikā* (Kumbakonam).

42. यत्तु पञ्चपादी विवरणयोरुक्तं.....॥ p. 98, l. 4. Quotations are given not

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taru, the *Śrutaprakāśa* and the *Adhikaraṇa-sārāvalī* of Vedānta Deśika. The author endeavours to show that perfect harmony of spirit and letter prevails only between the interpretations of Madhva and the Sūtras of Bādarāyaṇa and that other Bhāṣyas and their respective commentaries are not so well attuned or, in some cases, not at all, to the Sūtras (verse 10). There are thus two sides to the work : a constructive and a destructive one.[43] The first is to be seen in the attempt at reinforcing the interpretations of Madhva by additional arguments and harmonising the views of Madhva and those of his commentators following different lines of interpretation occasionally. As a notable instance of this may be mentioned the harmonisation brought about among the views of Trivikarma Paṇḍita (TD), *Sannyāyaratnāvali* and the TP of Jayatīrtha (pp. 77-78). V. also undertakes to make clear what is obscure in the sūtras, the bhāṣya of Madhva and in the Comm. thereon :—

सूत्रे भाष्येऽनुभाष्ये च सन्न्यायविवृतौ तथा ।
टीकासु च यदस्पष्टं तच्च स्पष्टीकरिष्यते ॥

He quotes where necessary from the AV, VTN and the *Nyāyavivaraṇa* (pp. 50 ff.).

As for the destructive side of the work, the author pursues with relentless energy, the interpretation of rival schools (*under each and every adhikaraṇa and Sūtra*) and picks out numerous flaws at every step :

प्रतिसूत्रं प्रकाश्येते घटनाघटने मया ।
स्वीयान्यपक्षयोः सम्यग्विदां कुर्वन्तु सूरयः (verse 10)

The *Candrikā* is thus a remarkable commentary of the Dvaita School, in which the dialectic machinery is applied with equal success and brilliance to the purely interpretative literature on the Sūtras.

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only from the Bhāṣyas of Śaṁkara, Rāmānuja etc. but also from the *Bhāmatī*, *Kalpataru* (p. 984 and 928, Kumbakonam edn.)

43. The following is a fitting tribute to the *Candrikā* :—

असूलाग्रनिबद्धतर्कजटिलं शब्दैकजीवातुकं
मीमांसानुनयं च शङ्करवचो हुङ्कारभङ्गप्रदम् ।
शास्त्रं तन्त्रचतुष्टयात्मकमिदं निस्वप्रतन्त्रान्तराः
व्याख्यास्यन्ति कथं पठन्ति च कथं किं वा कलौ दुष्करम् ॥
(Anonymous)

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A beginning in this direction had already been made by Madhva himself in his AV and by Jayatīrtha in his NS and V. has merely carried this to perfection even as desired by Jayatīrtha himself :— सूत्राक्षराणां आर्जवानार्जवादिचिन्ता शिष्यैरेव क्रियताम् (NS. ii, 2. adh. 6, p. 880). The *Candrikā* terminates however with the second Adhyāya of the Sūtras.[44] It was completed (up to the end of the fourth chapter) by Raghunātha Tīrtha, the tenth Pontifical successor of Vyāsarāya.

The total number of granthas in the *Candrikā* is 3450. It is the earliest commentary on the *Tattvaprakāśikā* (TP) of Jayatīrtha, that has come down to us. But it is certainly not the earliest ever written : V. himself on one occasion, quotes from an earlier Com. : केचित्तु, "'प्राप्तौ भुक् शुद्धिचिन्तयो'रिति वचनात् चिन्तात्मकज्ञानार्थोऽपि भूधातुरस्तीति, वो युष्माकं भाः, साकारत्वेनाभिमतं ज्ञानमिति वा अभिप्रेत्य, भाव इत्युक्तिः" इत्याहुः । (ii, 2, adh. 9, p. 919f.).

It is well known that the rules of Pūrvamīmāṁsā and its *adhikaraṇa-nyāyas* do not play a prominent part in the Sūtra-interpretations worked out by Madhva and some of his immediate disciples,[45] as they do in the case of Śaṁkara and Rāmānuja and their commentators. We have seen that Madhva relies instead, upon the principles of interpretation and interpretational exegesis contained in the *Brahmatarka* and such other works. The conclusion was apt to the drawn from this apparent indifference of Madhva to the science of *Pūrvamīmāṁsā* that its rules were more or less hostile to him, and that therefore he had cleverly evaded them.[46] Whatever the truth of the matter, V. saw that the time had come for a spirited defence of the interpretations of Madhva in the light of the rules and principles of the Pūravamīmāṁsā. With this end in view, he endeavoured to demonstrate that Madhva's

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44. There is no reason to suppose that V. was prevented by circumstances beyond his control from finishing his *Candrikā*. The stoppage at the end of the second Adhyāya was evidently deliberate as the third and the fourth adhyāyas (साधन and फल) do not contain much controversial stuff, the little they contain to that effect having been already dealt with in the third and fourth Pariccheḍas of the *Nyāyāmṛta*.

45. For stray references to Pūrva Mīmāṁsā rules, however, see Padmanābha Tīrtha's *Sannyāyaratnāvali* (p. 6, and AV *loc. cit.*).

46. Jayatīrtha too had not felt the necessity of justifying Madhva's interpretations in the light of the Pūrvamīmāṁsā. A later commentator Satyanātha, has tried to cut the gordian knot by boldly declaring that Madhva has *not followed* the Mīmāṁsā rules ! (*Abhinavagadā*, p. 10).

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interpretations are in full conformity with the general and particular principles of the Mīmāṁsakas and that they are *not* opposed to any principle or principles of theirs that we know of. This was indeed a bold bid and somewhat of an uphill task ; but V. has well-nigh accomplished his purpose and proved his case by citing a number of these nyāyas into the body of his exposition,[47] and correlating them to the views of Madhva. A similar procedure is adopted with reference to the rules and principles of the Vyākaraṇa Śāstra of Pāṇini and his followers. These two features are common to the *Nyāyāmṛta* also. Most probably the critics of Madhva had already begun to make this deficiency of the Dvaitins their chief plank of attack, and V. was in duty bound to set his house in order. The new move made by him consequently represents a new phase or development in the Dvaita Vedānta and its literature. From V. onwards, the appeal to Pūrva-mīmāṁsā becomes more or less regular and moral in Dvaita Literature.

Both in his *Nym.* and the *Candrikā,* V. has exhibited his remarkable command over the Mīmāṁsā Śāstra and its literature[48], and shown to the world of scholars that the system of Madhva has nothing to fear from the Mīmāṁsā Śāstra, but can always look it in the face and claim its support too, in many instances.

The following are some of the authors and works of other systems of thought cited in the course of the *Candrikā* :—

Bhāskara	Nyāsa	Ṛgvedānukramaṇī	Vivaraṇa
Kaiyaṭa	Nibandhana	(Kātyāyana)	Yādavaprakāśa
Kalpataru	Padamañjari	Śaṁkara's Bhāṣya	Śloka-vārttika
Mahābhāṣya	Pañcapadikā	on B.S.	(Kumārila)
Mahābhārata	Bhāmatī	Śrībhāṣya	
		Tantrasāra (Mīmāṁsā)	

Like the *Nym.,* the *Candrikā* too has given rise to some kind of controversial literature based upon it.[49] But the critics of V. in this case were neither so powerful as in the other instance, nor command-

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47. Cf. सम्मतं चैतन् मीमांसकानामपि—p. 192, 195, 640-4, 657, 722 f. : 787; 790. अश्वप्रतिग्रहेष्टि—pp 188, 463.

48. Quotations appear from the *Tantraratna,* the *Śāstradīpikā,* the *Śabara-bhāṣya,* Kumārila's *Vārttikas* etc. (p.51). These references to Mīmāṁsā and Vyākaraṇa literatures have given ample opportunities to Rāghavendra and Keśava, the commentators on the *Candrikā,* to quote profusely from the standard works of these systems and elucidate the purport of the originals.

49. Raghunātha Śāstri Parvate replied to the criticisms relating to the Advaita Vedānta and its comm. in his *Śaṅkarapādabhūṣaṇam* (alias *Candrikā-*

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ed such all-India importance and reputation. Nor were their writings of such vital importance and interest to the future of Vedānta philosophy. The history of this controversy and the works under this head will be dealt with later on.

The Mandāra-Mañjarīs.

"Mandāramañjarī" is the general title of V.'s glosses on four out of the ten *Prakaraṇas* of Madhva: the three Khaṇḍanas and the *Tattvaviveka*. It is *not* the name or distinctive title of any *one* of them as is presumed on p. 424 of the *Studies in the III Dynasty of Vijayanagar* (Madras Uni. His. Series, no. XI).

(4) *Māyāvāda-Khaṇḍana-Mandāramañjarī.*

This gloss runs to 500 granthas and is known also by the name of *Bhāvaprakāśikā.*[50] It is a tough and keenly argumentative gloss replete with logical niceties, and therefore beyond the average student of Sanskrit. The remark applies equally to the other Mandāramañjarīs. The author himself says at the outset that he proposes to concentrate his attention only on the obscure passages of the *ṭīkā*[51] and digress from the subject-matter only where it is absolutely necessary.

स्पष्टार्था य इह ग्रन्थः स न व्याक्रियते मया ।
ग्रन्थगौरवभीरुत्वान्न चोद्ग्रन्थं बहूच्यते ॥

(5) *The Upādhikhaṇḍana-Mandāramañjarī.*

This gloss runs to over 1500 granthas and is terse as above. The colophon to this comm. gives the information that the author read the classics of the Dvaitavedānta under Lakṣmīnārāyaṇa Tīrtha, alias Śrīpādarāya.[52]

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khaṇḍanam). The *Tattvamārtāṇḍa* of *Śaṭhamarṣaṇakula Śrīnivāsa* (Madras X. 4894) is another adverse criticism of the *Candrikā* and an answer to the objections raised in the latter to the interpretations of the *Śrībhāṣya*. Both these critics have been answered by subsequent writers from the Dvaita school.

50. By which name it is quoted in Rāghavendra Svāmin's gloss on the *Candrikā* (p. 71, Mysore edn.).

51. It must be remembered that the *Mandāramañjarīs* are glosses on the corresponding *ṭīkās* of Jayatīrtha on the originals and are not thus directly connected with the Prakaraṇas in question.

52. An acknowledgement to this effect is made also in introductory verse no. 6 of the *Nym.*:— लक्ष्मीनारायणमुनीन्वन्दे विद्यागुरून्मम ॥

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(6) *Prapañca-mithyātvānumāna-khaṇḍana-Mandāramañjarī*

This commentary (granthas 660) also goes by the name of *Bhāva-prakāśikā*.[53] V.'s glosses on the *Khaṇḍanatraya* are the earliest ones now available to us. Barring Brahmaṇya and Śrīpādarāya, he is also the earliest commentator known to fame, on any of the works of Jayatīrtha. But an interesting reference to and quotation from an earlier commentary on the *Prapañcamithyātvānumānakhaṇḍanaṭīkā* occurs on p. 8, lines 17-15 of V.'s Comm. (Bombay 1896). Nothing however is known of this Commentator. He has doubtless been eclipsed by V. who stands out as the earliest commentator of any importance on the ṭīkās of Jayatīrtha.

He goes far beyond the original in reinforcing Jayatīrtha's statement "सत्त्वात्प्रतीतिरसत्त्वाच्च बाध इति सदसदात्मकत्वेनाप्युपपत्तेः (p. 8, line 8) with elaborate allusions to certain technicalities of the Bhaṭṭa-Mīmāṁsakas (p. 18, lines 19-23). On p. 10, lines 16-24, the glossator repudiates certain attempted defence of the Advaitic position against the criticisms of Madhva.

(7) The *Tattvaviveka-Mandāramañjarī* has also been printed in Bombay.

(8) *The Bhedojjīvana.*

The references to the *Nym.*[54] and *Mandāramañjarī*[55] in the *Bhedojjīvana* show that the latter was undoubtedly the last of the works of V. It is a short Prakaraṇa in 275 granthas, and, as the name itself suggests, is intended to resuscitate 'Bheda' (difference) that has been stifled by the Monist. Its central thesis is that the reality of Difference is established by all the three Pramāṇas, viz. Sense-perception, Reason and Revelation. "Within a short compass he has covered the ground of the entire monistic literature pushed into contemporary prominence and argued an unexpurgated case for the Realism of Madhva."[56] Most of the arguments here are to be met with in more finished form in the *Nym.* which thus renders the Bhedojjīvana superfluous.

There is no connection whatever between the *Bhedojjīvana* of Vyāsarāya and the *Bhedadhikkāra* of Nṛsiṁhāśrama.[57] Neither of

53. व्यक्तं चैतत् मिथ्यात्वानुमानखण्डनभावप्रकाशिकायाम्—
Rāghavendra, gloss on TP., Bombay, p. 24.

54. P. 37, line 7; and P. 30, line 6, (Bombay 190).

55. P. 28, line 7.

56. R. Nagaraja Sarma, Reign of Realism in Ind. Phil., Madras 1931, p. 15.

57. The *Bhedadhikkāra* is merely a general defence of the Advaitic position. It does *not* quote from the *Bhedojjīvana*. The scheme of topics dealt with in

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them is a criticism of the other though their titles may at first sight tend to suggest a relation. But the author of the *Bhedadhikkāra* is undoubtedly later than Vyāsarāya as can be seen from the criticisms which he has directed against certain passages of the *Nyāyāmṛta* in his *Advaitadīpikā*.[58] There is also independent evidence to show that one of Nṛsiṁhāśrama's works—the *Tattvaviveka*—was composed in 1558 A.D.[59] He was thus a younger contemporary of Vyāsarāya who died in 1539 A.D.

Abbreviations.

A.V. = Madhva's *Anuvyākhyāna* ;
J. = Jayatīrtha ; T.P. = Jayatīrtha's *Tattvaprakāśikā* ;
T.D. = Trivikrama Paṇḍita's *Tattvapradīpa* ;
NS. = *Nyāyasudhā* ; Nym. = Vyāsarāya's *Nyāyāmṛta* ;
VTN. = Madhva's *Viṣṇutattvanirṇaya* ;
SM. = *Stotramahodadhi*.

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the two is entirely different. The *Bhedadhikkāra* refers to अर्थापत्ति as a means of establishisting difference to be real and criticises the जीवविभुत्वपक्ष, both of which are alien to the *Bhedojjīvana*.

58. *Advaitadīpikā* of Nṛsiṁhāśrama, in 2 Vols., Medical Hall Press, Benares. 1919. Cf. Pariccheda II, p. 3, 4 (तत्र नवीनः) with *Nym.* II, 17, p. 567-8 (Bombay Edn.) ; p. 5 with Nym. 571-2 ; p. 7 with p. 573 ; p. 9 with p. 574 f. and 587 ; p. 15 with p. 589 ; and p. 16-18 with p. 589 f.

59. अब्दे वेदवियद्रसेन्दुगुणिते
पौषासितश्रीदिने ।
रक्षो नामनि पूरुषोत्तमपुरे
ग्रन्थं मुदाचीकरत् ॥ (India Office Catalogue IV, p. 761, Nos. 2379-80).

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PRE-INDO-EUROPEAN

By SUNITI KUMAR CHATTERJI.

Sir William Jones laid the foundation to Indo-European linguistics with his epoch-making pronouncement in the year 1786 before the Asiatic Society of Bengal in Calcutta :

> The Sanscrit language, whatever be its antiquity, is of wonderful structure, more perfect than the Greek, more copious than the Latin, and more exquisitely refined than either ; yet bearing to both a stronger affinity, both in the roots of verbs and in the forms of grammar, than could have been produced by accident ; so strong that no philologer could examine all these without believing them to have sprung from some common source, which perhaps no longer exists. There is a similar reason, though not quite forcible, in supposing that both Gothick and Celtick, though blended with a different idiom, had the same origin with the Sanscrit.

"Some common source, which perhaps no longer exists" : since the first attempt on the part of Franz Bopp in 1816, thirty years after Jones's pronouncement, to raise the structure of Indo-European linguistics, by his "Ueber das Konjugationssystem der Sanskritsprache in Vergleichung mit jenem der griech., lat., persischen und germanischen Sprachen," after Colebrooke and Foster had published their Sanskrit grammars from India, Alexander Hamilton had taught Sanskrit to Friedrich Schlegel in Paris, and F. Schlegel and his brother Adolf had introduced Sanskrit into Germany (the former by his famous work "Ueber die Sprache und Weisheit der Inder", 1808), it has been the steady objective of four generations of scholars in Europe, and then in America, to rediscover that "common source" which no longer existed. All the Indo-European languages, in both their most ancient and later forms, were studied in detail ; and bit by bit, from discovery to discovery, the science advanced, and finally by the close of the 19th century it was possible for it to postulate the hypothetical Indo-European source-speech which as the ancestor of Vedic, Avestan, Greek, Latin, Gothic, Old Irish, Old Church Slav and the rest, could explain their formation and their anomalies. Bopp, Grimm and Rask were followed by Pott, Schleicher, Benfey, Fick, Bezzenberger, Kuhn, Scherer, Curtius, and Johannes Schmidt, and then by the "Junggrammatiker" or Linguistic Scholars of the New School, viz., Paul, Braune, Sievers, Karl Verner, Osthoff, Brugmann, Hübschmann, de Saussure, Jolly, Schulze, Kretschmer and Delbrück in Germany, and Fortunatov, Ascoli, P. Giles, A. Noreen, Uhlenbeck, Antoine Meillet and others in other

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European countries ; and we have the most recent scholars in the field, H. Hirt, A. Thumb, F. Sommer, H. Reichelt, R. Thurneysen, Mikkola, Leskien, Oertel, Walde, Pokorny, Streitberg, Gauthiot, Prokosch, Sapir, Kent, Sturtevant, Buck, and a number of others, in Germany, France, England and other countries of Europe, and America, who are engaged in working out the "common source" of the Indo-European speeches envisaged by Sir William Jones. Thanks to their labours, with the existing linguistic materials furnished by the Indo-European languages which are current either as living languages or as classical or older languages the study of which has remained unbroken or has been revived, we have now been enabled to form a clear idea of the source-from of these—of the Primitive Indo-European Speech, as a single and undivided language (with such dialectal differences as are present in all languages). The reconstruction of Primitive Indo-European, particularly in its sounds and inflexions, is one of the greatest achievements of the human intellect during the past one hundred years. We have been enabled by it to arrive, with the greatest amount of probability possible under the circumstances, at the nature of Indo-European sounds and forms, as they were in the language as current among the original Indo-European speakers in their problematic home ("somewhere in Eurasia") some five thousand years ago. This reconstructed hypothetical source-speech now forms the *terminus ad quem* we can take back the story of a particular Indo-European language, or of all the Indo-European languages in general. We are now in a position to refer the sounds and inflexions of a language like Sanskrit, Greek, Russian or Albanian to their source-forms in Primitive Indo-European, and can juxtapose the former with the latter as mutually complementary speech material. A number of lost Indo-European languages have been discovered from Central Asia during the last decade of the 19th century and the first decade of the 20th,—Sogdian and Old Khotanese, both of which belong to the Iranian section of the Indo-Iranian (Aryan) branch of the Indo-European family, and Old Kuchean or Tokharian, which froms a new and a separate branch by itself in the family, with greater agreement in certain matters with Celtic, Italic and Germanic and Slav and Armenian of the west rather than with its next-door neighbour Indo-Iranian. Ancient languages like Venetian, Phrygian, Thracian etc., which are found in a few epigraphic remains and in a few words in classical writers have also been studied, and as far as the very meagre specimens have allowed us to do it, they have been found places in the Indo-European family. The discovery and affiliation of these new speeches so far have not affected the character of the hypothetical Primitive Indo-European Language as restored or re-established by scholars.

By 1900, we may say that the Primitive Indo-European Language became re-established through the labours of specialists, and it was believed to have possessed the following characteristics.

In its Phonetic System, in the first instance, it was admitted by all to have possessed the following sounds :

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Vowels: Short a, e, o, i, u.
Long ā, ē, ō, ī, ū.

Very short ə, and some indistinct vowels like i, ŭ.

Diphthongs, short and long, with the above short and long a (ā), e (ē), o (ō), vowels followed by i and u (i.e. y and w): ai, ei, oi, au, eu, ou, and āi, ēi, ōi, āu, ēu, ōu.

The Vowel System of Primitive Indo-European was a comparatively simple thing. The simple vowels a e o were in a way the nett vowels of the language, and i u as well as the very short vowels had after all a secondary position. Long ī and ū were of secondary origin, being the result of combination of short i and u with a preceding very short vowel ə, itself a modification of a, e, o; while i and u were of consonantal, semivowel origin. Long ā ē ō on the other hand appeared to be the result of the modification of their corresponding short forms, through what is known as *Quantitative Ablaut*, which was probably due ultimately to the working of stress accent in prehistoric Indo-European, when Primitive Indo-European as it stood immediately before its break-up was still being developed. This hypothetical, reconstructed Vowel System so far perfectly explained almost all the facts of vowel phonology in the different Ancient Indo-European languages.

Consonants. The Consonants of Indo-European were reconstructed as follows:

Labials— p, ph, b, bh, m;
Alveolars or Dentals—t, th, d, dh, n;
'Palatals' i.e. Front Velars or Front Gutturals—k, kh, g, gh, ṅ (sometimes written as $\hat{k}$, $\hat{k}h$, $\hat{g}$, $\hat{g}h$, $\check{n}$);
Velars (really Uvulars ?)— q, qh, ɢ, ɢh, ɴ;
Labialised Velars— q^w, q^wh, $ɢ^w$, $ɢ^wh$, $ɴ^w$;
Liquids— r, l;
Sibilant— s (with z as a modification of s);
Semivowls— y, w.

The Liquids r, l and the Nasals m, n, ṅ, ɴ, $ɴ^w$ could form syllables without the help of any vowel, and therefore they could function as vowels when a contiguous vowel (a, e, o) was lost through absence of accent. Sanskrit had helped most in establishing the Primitive IE. consonant system, just as Greek helped in the matter of the vowels. In the above system of consonants, stops and their aspirates predominate. There is a total lack of spirants, except the solitary s, which became z in voiced company. Some scholars, however, hold that Prim. IE. possessed some noteworthy spirant sounds as well—e. g. χ, γ, θ, ð, besides a kind of ž; but this view is not generally accepted. There was

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no separate h sound in Prim. IE. The IE. consonants thus had a definite stop and aspirate predominance; and the language lacked some of the typical sounds of Semitic, e. g. the pharyngals ḥ and ' (=*ḥā* and *'ayn* of Arabic), the glottal stop ʔ (=*ḥamza* of Arabic), and the velarised sounds (t^w, d^w, s^w, $ð^w$ or z^w of Arabic). Like the vowels, the above consonant system also explained perfectly the consonantal developments in the Indo-European languages.

The Morphology of Indo-European as reconstructed showed in the declensional system a general agreement with Vedic, allowing for certain innovations in the latter, but in the conjugation of the verb Prim. IE. as a result of comparison among the various ancient IE. languages pointed towards quite a different state of things from that presented by Vedic, Greek and other IE. speeches of the oldest phase. The Slav branch of IE. rather suggested the line in which verbal inflexion operated in Prim. IE., and the science as well as imagination of present day linguistic scholars have evolved for Prim. IE. quite successfully a hypothetical scheme of conjugation from which the conjugational systems of the ancient Indo-European tongues can be shown to be perfectly understandable developments.

The Primitive Indo-European Sound and Inflexion System thus established formed a crowning achievement of the 19th and 20th century linguistic science. It was firmly established on the rock of the ancient languages, and the caution of modern science had left hardly any weak spot in its structure. But during the second decade of the 20th century, some new facts came up with the discovery of a new Indo-European language, the Hittite, in contemporary documents going back to the middle of the second millennium B.C. in Asia Minor. The existence of this ancient language came to light as early as 1902, when J. A. Knudtzon noted the Indo-European character of the language of two letters in the Pharaonic archives at Tell el-Amarna in Egypt, one of which was sent to the king of Arzawa in Asia Minor by the Pharaoh of Egypt Amenhetep III. (J. A. Knudtzon—*Die zwei Arzawa-Briefe*: *die ältesten Urkunden in indogermanischer Sprache*: with notes by S. Bugge and A. Torp: Leipzig, 1902). In 1907 Hugo Winckler discovered a whole literature in Hittite in cuneiform characters on clay tablets in the Turkish village of Boghaz-Köi 90 miles east of Ankara, which is the site of the ancient Hittite capital of Hatusas. Winckler secured "considerable part of the royal archives, including several thousond tablets and parts of tablets." These texts, legal, political, religious and ritualistic, historical, medical, epistolary and relating to training of race-horses, presented to the learned world quite an *embarras de richesse*. The names of the Vedic Gods Mitra, Varuṇa, Indra and the Nāsatyas were discovered in one of the texts by Eduard Meyer. But Hugo Winckler died in 1913, and although with the help of the bilingual texts in the Semitic Assyrio-Babylonian language and Hittite, and from the nature of Hittite writing,

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Assyriologists could make out the purport of the texts, yet it was only in 1916 that the Czechoslovakian scholar Friedrich Hrozny was enabled to demonstrate the full Indo-European character of the language (in his *Die Sprache der Hethiter, ihr Bau und ihre Zugehörigkeit zum indogermanischen Sprachstamm: ein Entzifferungsversuch*: Leipzig, 1917). The Norwegian scholar C. J. S. Marstrander followed suit with his *Caractère indo-europeen de la Langue Hittite* from Christiania (Oslo), 1918, and in 1922, Johannes Friedrich gave a full sketch of the Hittite language in the pages of the German Oriental Society's Journal (*Die Hethitische Sprache*, ZDMG., Leipzig, 1922, New Series, Vol. I, Part 2, pp. 153-173). Other scholars came with their contributions in the elucidation of Hittite, and Hittite studies passed on to the United States, where American scholars have taken a prominent part in this field of linguistic research, one of the most valuable American contributions, apart from other works, being Professor Edgar H. Sturtevant's *Comparative Grammar of Hittite* (1933, Linguistic Society of America, University of Pennsylvania, Philadelphia). Hittite studies are progressing apace, and since Sturtevant's great work of 1933, much additional ground has been traversed by American scholars, and all this has been published in papers contributed to *Language*, the *Journal of the Linguistic Society of America* and to the *Journal of the American Oriental Society*. Hittite studies having during the last twenty years come to the forefront of Indo-European researches, these studies have now entered into the second phase of their history, when the proper relationship of Hittite with the other Indo-European languages has been definitely established by Sturtevant and others; and some of the findings in this second (and by no means final) stage in Hittite studies are proving to be revolutionary for Primitive Indo-European as reconstructed—at least in pushing back the history of reconstructed Primitive Indo-European by some two stages earlier; they are helping us to form a glimpse of Pre-Indo-European, when Indo-European as we have restored it was in the making.

The first study of Hittite revealed its nature as an Indo-European language, but it proved rather disconcerting as it did not fit in with reconstructed Indo-European which explained so perfectly all the other Indo-European languages. A theory had to be formulated that Hittite presented in itself a world apart in the domain of Indo-European—as a matter of fact, Hittite with its peculiarities was looked upon as an early branching off from the Parent Indo-European Stock, with special developments of its own. But it gradually began to dawn upon workers in this field that these developments presented by Hittite were not aberrations due to contact with other speeches, but developments from an earlier stage which must also take note of Indo-European as reconstructed; and Sturtevant and others finally came to the position that Hittite represented not a descendant of Indo-European like Sanskrit, Greek, Latin and the rest, but rather it was a sister of Indo-European: Indo-European being from this point of view, a sister of Hittite, and Hittite was, so to say, an aunt or a cousin of an Ancient Indo-Euro-

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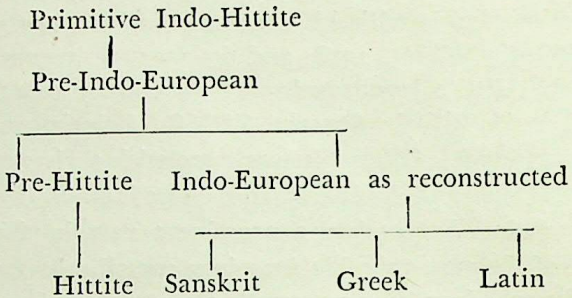
pean language like Sanskrit, Greek or Latin. The hypothetical common source of Hittite and reconstructed Indo-European has been named by Sturtevant "Indo-Hittite", and the relationship has been shown by means of a genealogical table like the following :



This hypothetical Indo-Hittite has not yet been universally accepted by scholars, but judging from the most recent trends of Hittite studies, it would appear that there is no other alternative but to take one more step back into the unknown, behind Primitive Indo-European ; and the soundness of this step has to be admitted when we find that it takes us to a more primitive stage than Indo-European, explaining a good many apparent anomalies and irregularities in it. By the creation or reconstruction of Indo-Hittite, another big advance has been made in unravelling the origins or early history of the most important language family of the world—the Indo-European.

Let us see how this Pre-Indo-European Primitive Indo-Hittite stands.

First, in the matter of the *Sounds*. Hittite was found to possess, so far as the various stops and aspirates were concerned, only a solitary unvoiced stop in place of the four in each group—the two unvoiced stops and aspirates, and the two voiced forms of these : only a k for k, kh, g, gh ; only t for t, th, d, dh ; only a p for p, ph, b, bh. There is nothing strange or remarkable in this : many languages show a similar poverty in stops and aspirates. The absence in Hittite of the aspirates and of voiced stops does not in the least influence our assumption of these in Indo-European ; in Indo-Hittite, we have to assume their existence as much as in Indo-European itself—the Hittite change being confied to that branch of Indo-Hittite only. Indo-European guttural sounds were found to fall in these groups— (i) the so-called 'Palatals', just simple k, kh, g, gh ; (ii) the so-called 'Velars', which were probably Uvulars : q, qh, ɢ, ɢh; and (iii) the Labialised Velars—q^w, q^wh, $ɢ^w$, $ɢ^wh$. The evidence presented by Hittite would appear to suggest that the position for Pre-Indo-European, for Indo-Hittite, was slightly different. It would appear that the Indo-Hittite gutturals were in two sets— (i) ordinary 'Velars' (or Uvulars) —q, qh, ɢ, ɢh ; and (ii) those with labialisation, or an accompanying

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w or u quality—q^w, q^wh, g^w, g^wh. The ordinary group of gutturals q, qh, g, gh appears to have split up into two groups in Indo-European—a group where they became more advanced in pronunciation through contact with front vowels—were 'palatalised', so to day: and the labialised gutturals retained their original quality. But it is believed that the proper distribution of both these modified groups of the gutturals (k, kh, g, gh) and the primitive labialised set (q^w, q^wh, g^w, g^wh) was much disturbed in Pre-Indo-European and in Primitive Indo-European by analogy: the three new sets, or newly arranged sets of gutturals in Indo-European as reconstructed, present an apparently regular array, but there are many anomalies which the investigation of Hittite alone appears to solve.

Very important is the question of h (=χ) in Hittite. It was found that in many words and forms Hittite shows a guttural spirant sound χ, written h, where the Indo-European languages have nothing: e. g. Hittite arχa 'away' = Skt. ārḗ 'after', ārát 'from'; Hit. esχar = Skt. ásṛk, Gk. éar 'blood'; χants 'front', χanti 'in front, especially, separately', χantetsis 'first' = Gk. antí 'opposite', ánta 'face'; χarkis 'white, bright' = Gk. árgos 'shining,' Skt. árjuna 'white'; χastai 'bones' = Skt. ásthi, Gk. ostéon, Lat. os 'bone'; χwestsi 'lives' = Skt. vásati 'tarries, dwells'; χwrtai 'curses' = Lat. verbum, Gothic waúrd (wɔrd) 'word', = IE.*werdhom; sχai 'empties, sprinkles' = Gk. húei 'it rains'; etc. Moreover, in a few words, it is found that Hittite has short vowel + h (i.e. χ, or some modification of it) + consonant, whereas Indo-European shows long vowel and consonant (e.g. Hittite maχlas 'branch of grape vine', = Gk. Doric mālon 'apple'; Hit. meχweni 'time' = Indo-European *mē-t-, whence Skt. mātram, Gk. mētron; etc.) This appeared to confirm what Ferdinand de Saussure of Geneva, one of the creators of Indo-European linguistics, had suggested as early as 1879, viz. that IE. long vowels not due to Ablaut (Vowel Gradation according to laws of accent) were the result of the loss of certain following consonants.

From this disconcerting h (i. e. χ) of Hittite, certain other sounds in Primitive Indo-Hittite, not envisaged in Indo-European, are being arrived at. Sturtevant, and J. Alexander Kerns and Benjamin Schwartz have assumed the existence in Indo-Hittite of *four new sounds* not present (or preserved) in Indo-European (see "The Laryngeal Hypothesis and Indo-Hittite, Indo-European Vocalism" by Kerns and Schwartz, Journal of the American Oriental Society, Yale University Press, Vol. 60, 1940, pp. 181-192; and E. H. Sturtevant, "Evidence for Voicing in Indo-Hittite γ", in *Language*, Journal of the Linguistic Society, of America, Vol. 16, no. 2, April-June 1940, pp. 81-87). The *Laryngeal Hypothesis* is something of capital importance in connection with the evolution of Indo-European. It has become necessary to assume *Four Guttural Spirants*

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in Indo-Hittite (cf. Kerns and Schwartz as referred to above; Sturtevant in his articles in *Language* mentioned above thinks that two of these four sounds are glottal stops, one of 'palatal colour' and the other of 'velar colour', and two velar spirants, one a voiced γ and the other an unvoiced χ). These were as follows (the symbols I have used are more in accordance with wider usage in this matter, and the terms employed are also my own, seeking to make Kerns and Schwartz's theory appear in a more familiar garb):

1. χ'—a voiceless velar spirant, advanced ('palatalised').
2. γ' —a voiced " " " "
3. χ— voiceless velar spirant, purely velar (or uvular).
4. γ —a voiced " " " "

(I should not call χ' γ' "palatal spirants" = [ç j] of the International Phonetic Script, as such palatal spirants would be too early for Indo-Hittite).

With the assumption of the above four sounds in Indo-Hittite, not only has Hittite and Indo-European connexions been made clear but also a new vista has been opened up in reconstructing the pre-history of Indo-European. Certain fundamental matters in Indo-European vocalism and consonantism have been given a new and apparently a more reasonable explanation. The oldest stage of Indo-Hittite (taking the language back to 4000, or 5000 B.C.?) could only be expected not to have a varied vowel system, and early human speech can be reasonably expected to be rich in guttural consonants and guttural grunts, which would have their influence on the meagre or restricted vowel system: and the advanced or receded quality of the guttural spirants can easily affect the timbre of the vowels, turning a neutral or a guttural vowel into a palatal one, and *vice versa*. The situation as suggested for Primitive Indo-Hittite and for the subsequent development in Hittite and Indo-European is as follows:

Primitive Indo-Hittite	>	Indo-Hittite	>	Hittite,	Indo-European
(i) χ'e-	>	χ'e	>	e,	e
γ'e-	>	γ'e	>	χe	e
χe-	>	χa	>	χa,	a
γe-	>	γa	>	a,	a
(ii) -eχ'et-	>	-éit-			
-eγ'et-	>	-éit-		-ĕt-	-ēt-
-eχet-	>	-éit-			
-eγet-	>	-éit-			
(iii) -eχ't-	>	-eχ't-		-ēt-	-ēt-
-eγ't-	>	eγ't-		-eχt	-ēt-
-eχt-	>	-aχt-		āt-	āt-
-eγt-	>	-aγt-		-aχt-	-ēāt-

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(iv)	teχ′e	>	tχ′e	>	te the
	deχ′e	>	dχ′e	>	te te
	teγ′e	>	tγ′e	>	te de
	deγ′e	>	dγ′e	>	te dhe
	teχe	>	tχa	>	ta tha
	dexe	>	dγa	>	ta ta
	teγe	>	tγa	>	ta da
	deγe	>	dγa	>	ta dha
(v)	-eχ′e	>	-eχ′	>	-ē -ē
	-eγ′e	>	-eγ′	>	-ē -ē
	-eχe	>	-aχ	>	-ā -ā
	-eγe	>	-aγ	>	-ā -ā

Examples have been adduced by Kerns and Schwartz to illustrate all above sound changes. Aspiration of consonants and modification of vowels in the root in IE. would thus appear to be based, partially at least, on the presence and behaviour of these guttural spirants ("the Laryngeals").

The Consonant System of Pre-Indo-European Indo-Hittite, therefore, is reconstructed as follows :

Stops and Aspirates—Velars (really Uvulars)—q, qh, ɢ, ɢh (ɴ);
Velars (") with lip-rounding, or w/u quality—q^w, q^wh, $ɢ^w$, $ɢ^w$h ($ɴ^w$);
Dentals or Alveolars—t, th, d, dh, n;
Labials— p, ph, b, bh, m;

Spirants—Advanced ('Palatalished') Gutturals—χ′, γ′;
Guttural Spirants (Velars, Uvular)—χ, γ;

Sibilants—s, z.
Liquids— r, l (r is never initial in Indo-Hittite).
Semi-vowels—y, w.

The nasals also functioned as sonants, same as in Indo-European.

As regards Vowels, nothing definite has been established so far for Indo-Hittite : the original Indo-Hittite Vowel System has not been satisfactorily made out. Possibly it did not differ much from that of Indo-European, but there is no doubt that Indo-European Ablaut and the Indo-European Vowel System were in the making in the Indo-Hittite stage, and the Vowel System was in all likelihood comparatively meagre, the 'advanced' and the normal spirants beginning to affect the quality of the vowels.

In Indo-Hittite two dental stops side by side developed a sibilant between them : tt, tth, dd, ddh gave tst, tsth, dzd, dzdh. IE. partly hints at this state of things. Hittite has preserved it regularly.

Phonetics is the basis of language, and the study of Chinese Phonetics and

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Phonology has revealed an unexpected situation for Ancient and Archaic Chinese —it was an inflected language originally, and became isolating in later times through loss of sounds. The nature of Indo-European in its pre-historic and formative period has been similarly revealed to be something different from reconstructed Indo-European. Intensive study of Indo-European Ablaut as a phonetic phenomenon and of the formation of root bases by extension (i.e. by adding fresh formative elements) was disclosing gradually the complications that are behind the "root" in Indo-European. Hittite has widened the horizon for Indo-European. The Indo-Hittite group γ'w- becomes χw- in Hittite, and simple w- in Indo-European : the Primitive Indo-Hittite root was *γ'ewe- 'be in a state of motion, move, live,' whence we have Hittite χuwai- 'grów ; go ;' with s- extension, it became *γ'we-s-, = Hittite χwes 'live' and Indo-European *wes = Sanskrit vásati, Gothic wis-an ; with prefix *be-, it gave Indo-Hittite *be-γ'ewe, extended to *beγ'ewā, whence we have Indo-European *bhewe-, bhewā = Sanskrit bhava, bhavi-, bhū, English be ; so that in New English we have not a suppletive paradigm, but the same root with diverse formatives. (Kerns and Schwartz, article referred to before, p. 185, foot-note 8). Comparative Linguistics of Indo-European and Hittite thus presents before us a strange and a new world : but a world which fits in with Indo-European as arrived at by a century of linguistic research. The root formatives and extensions now take a greater importance than ever in the evolution of Indo-European.

Some of the salient points in Indo-Hittite *Morphology* which can be deduced from Hittite may be noted.

Hittite is probably faithful to Indo-Hittite is not having developed the habit of forming compound words made up of two or more nouns. Indo-European in this matter evidently made a great advance on Indo-Hittite. On the other hand, the lavish scale in which reduplication features in Hittite in the formation of both nouns and verbs would suggest that Indo-Hittite too in this matter was more fecund than Indo-European, in which reduplication, however, continues to retain an important place.

There is a fairly large number of formative suffixes in Hittite, equivalents of which are found in most cases in the different Indo-European languages. The number of prefixes is exceedingly limited : sa- < Indo-Hittite *s$\mathring{m}$, found in Skt. and Gk., and χa- < Indo-Hittite *χa, found in Greek.

In the Declension of the Noun, the situation as arrived at in Indo-European would appear on the whole to hold good for Indo-Hittite as well. Hittite has two genders, an animate (including masculine and feminine, which are not differentiated) and an inanimate (or neuter). The feminine gender, it has been clearly established, did not occur in Primitive Indo-European,—it was developed independently in the different ancient Indo-European speeches. So far as the indication of number is considered, there are traces of the dual (e.g. χasa

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χatsasa 'grand-child (and) great-grandchild', which correspond to Sanskrit *devatā-dvandva* compounds (like Mitrā or Mitrā-Varuṇā = 'Mitra and Varuṇa'; cf. Gk. Aíante = 'the two Aias, or Ajaces'). The plural is in wide use, and the affixes agree with those of Indo-European in some cases, in others they appear to be peculiar to Hittite and may be innovations. The Indo-European character of the noun inflexion is fully represented in Hittite, and most Hittite case forms have their counterparts in the ancient Indo-European languages. As a typical Hittite paradigm, the declension of a masculine noun ending in -a (= -o of Indo-European) may be quoted:

	Sg.	Pl.
Nom.	antuχsas 'man'	—antuχsēs
Acc.	antuχsan	—antuχsus
Instr.	[antuχset]	———
Loc. Dat.	antuχse	———
Abl.	antuχsas	antuχsās
Gen.	[antuχsas]	

The inflexions as above are mostly comparable to those of Indo-European. The use of the same form for nominative and genitive in -a (= IE. -o) stems is noteworthy: we find one or two traces of it in Sanskrit (e.g. sūrē duhitā from *sūras duhitā = 'daughter of the sun'). A noteworthy group in the declinational system of the noun in Hittite is presented by the r/n- stems (e.g. nominative sg. utar 'water', gen. utanas; esχar 'blood', gen. esχanas; stamar 'ear', gen. *stamanas; kutar 'neck', gen. *kutanas; paχur 'fire', gen. paχunas; cf. Skt. heteroclitic nouns: asṛ-k 'blood', gen. asnas; yākṛ-t 'liver', gen. yaknas; Latin iecur 'liver', gen. iecinoris; Gk. hēpar 'liver', gen. hēpatos. The declension of the noun in Indo-Hittite would appear to have been much less complicated than in Indo-European.

For the Pronoun, comparison of Hittite with Indo-European has enabled Sturtevant and others to conclude that Indo-Hittite possessed but a meagre set of pronominal forms, to wit:

	First Person.		Second Person.		Third Person.
	Sg.	Pl.	Sg.	Pl.	Sg.
Nom.	*eg	*weis	*tē	—	—
Obl.	*ǐme, mē, moi	*n̥s, nos	*twe, toi, tū,	usme	soi.

On this basis Hittite built up a regular paradigm for the first and second persons. Enclitic pronouns occurred in Indo-Hittite as much as in Indo-European, and, besides, Hittite possessed some enclitic possessive pronouns which are not found in Old Indo-European languages, but which nevertheless may have been inherited by them from Primitive Indo-European and ultimately Indo-Hittite—for these enclitic possessives are found in some later Indo-European

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languages, e.g. Persian. The Demonstratives, and the Indefinite, the Relative and the Interrogative Pronouns are found in Hittite, and the bases in all cases can be connected with corresponding pronouns in the different Indo-European languages. Some of these are not presented in Indo-European as pronoun forms: e.g. Hittite apas 'that', which appears to be connected with the Indo-European *obhi 'to, towards' (Skt. abhi, Lat. ob).

In the Conjugation of the Verb we get in Hittite plenty of glimpses of an earlier state of things than in Indo-European. There are to start with a number of 'separable prefixes' (= *upasargas* of Sanskrit) which modify the meaning of the verb-base; some of these are identical with Sanskrit, Greek and other Indo-European prefixes: e.g. apa = Gk. apó; anta = Old Lat. endo; awan = Skt. ava; χanti = Gk. antí; kata = Gk. katá; pra = Skt. pra, Gk. pro; etc.

Reduplication is fairly common in the Hittite verb root in the intensive sense (e.g. as in Skt. desideratives and frequentatives), but it is unlike Sanskrit reduplication in the perfect.

"The Hittite verb has two moods (Indicative and Imperative) and two tenses (Present-Future and Preterit). There are two infinitives, one nearly always active and the other usually intransitive, a participle that is regularly intransitive, a supine that combines with *tai-* 'place', to mean 'begin and continue the action of the verb', and verbal nouns of two types. There are two secondary conjugations, one causative and the other iterative-durative. Finally, there is a compound perfect and its preterit consisting of the neuter of the participle with the two tenses of the auxiliary verb har(k)- 'have'. There is a medio-passive voice which may differ from the active in being reflexive or passive or in implying some particular interest on the part of the subject, but which often appears to be equivalent to the active." (Sturtevant, p. 216).

The above system has a general affinity with Indo-European, but Hittite from its verb system would appear to have been cut off from the main body of Indo-Hittite (or Indo-European before the verb-system in the latter started to take its definite shape). Hittite roots fall under one or the other of two great types in the matter of conjugation: the -mi- Conjugation, and the -χ- Conjugation, in the Active Voice (the Conjugation for the Medio-passive is different). The -mi- Conjugation corresponds roughly to the Indo-European present and aorist systems, athematic and thematic. Roots which come under this are either athematic, presenting a fairly large class which became considerably curtailed in Indo-European, or thematic; and roots of these thematic classse are derivative forms with extensions of the original root by means of affixes (=*vikaraṇas*, as they are called in Sanskrit). In Hittite these are -iya, -a(e), -s, -es, -n- (nasal infix), -no, -ske/a. Indo-European, however, shows many more: but these of Hittite are found also in Indo-European. The affixes for the present tense of the mi- class correspond to those for the present and aorist of Indo-European:

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and this lack of distinction between the affixes of the present and the aorist as implying diversity of time—present and past—appears to have been inherited by Hittite from Indo-Hittite—Indo-European specialised or narrowed down the aorist to the past sense. The preterit of the mi-Conjugation corresponds to the imperfect of Indo-European (= *laṅ* of Sanskrit), but the affix for the 3 pl. is from the Indo-Hittite perfect.

The χi- Conjugation includes three groups of verbs: (i) those with consonant stems, including Primary Verbs, Denominative Verbs in -aχ, and Derivative Verbs in -χ; (ii) those with a-stems—including Primary Verbs, and Derivatives in -na and -sa; and (iii) Verbs with diphthongal stems. "The present of the χi-Conjugation corresponds in general to the IE. perfect (= *liṭ* of Sanskrit), but with considerable influence from forms that in Indo-European grammar are called present or aorist." (Sturtevant). The preterit of the χi-Conjugation is a composite of forms corresponding to IE. aorists, and new creations.

The Hittite Medio-passive corresponds to the Greek Middle Voice—the Skt. *ātmanēpada*. It has two tenses, present-future and preterit in the Indicative, and it has also the Imperative, and Participle, and Verbal Noun. The formation is along the lines of the active, but there are special personal endings.

In the Conjugation, Hittite has no dual—only singular, and plural, but the three numbers are found.

Hittite appears to have developed at least three periphrastic forms—a participle with the verb es 'to be', to denote the past or perfect, and similarly the neuter participle with χar(k) 'have' for the perfect, beside the supine in -wan with forms of the verb tai- 'to place' to denote the beginning and continuance of an action.

A few Paradigms will indicate the situation for Hittite:

(A) mi-Conjugation.

	Indicative	
Present	Preterit	Imperative
et 'to eat':		
1. etmi—atweni	1. *etun—*etwen	1. ———
2. *etsi—atsteni	2. *ets—*etsten	2. et—*etsten
3. etstsi (< etti) —atantsi	3. etst—eter	3. *etstu—*atantu

Participle: atants. Infinitive—*atantsi.
Supine —*etwan. Verbal Noun—*etwar.

(B) χi- Conjugation:

sak 'to know':		
1. sakχi—sekweni	1. *sakχun—sekwen	1. ———
2. sakti—sekteni	2. sakta—*sekten	2. sak, saki—sekten

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3. saki—sakantsi 3. sekt, saks—seker 3. saktu—sekantu

sekants ; *sekwantsi ; *sekwant ; *sekwar.

(C) the Medio-Passive :

ya 'to go' :

1. ———*yawasta	1. yaχat, yaχaχ'at—×	1. ———
2. yata—yatuma	2. *yaat, *yatat—*yatumat	2. *yaχut—yatumat
3. yata—yanta	3. yatat—yantat	3. ———

Participle—*yaants. Verbal Noun—*yaatar.

The above conjugation on the face of it appears to be remarkably simple. The personal terminations have their IE. affinities, and connexions with IE. forms have been discovered. Very noteworthy is the use of the forms in -u for the Imperative in the 3rd person, which is found in Indo-Iranian (Sanskrit, Avestan, Old Persian). The -r form in the preterit in the active conjugations (mi- as well as χi-) is connected with the r in the perfect, as in Skt. -ur (ūcur, cakrur), Avestan -arə and Latin -ēre. This is found also in Tokharian. In the Medio-Passive there are in Hittite some inflexions with -r (-tari, -ntari, 3 person sg. and pl. not noted in the paradigms given above), and these have been connected with the similar Italic, Celtic and Tokharian forms.

It appears that Hittite inherited elements from the Pre-Indo-European—from Indo-Hittite in fact,—before the Conjugation could become crystallised into what we find in late Primitive Indo-European, immediately before its break-up.

Thus Hittite has enabled us to formulate our views about pre-historic Indo-European : it has enabled us to adventure still further beyond in unravelling the origins of the Indo-European speech.

The hypothetical Indo-Hittite in the process of reconstruction has allowed us legitimate speculation about the origins of Indo-European in both its sounds and forms, but it has not given us as yet any clue as to the time and place for Primitive Indo-Hittite as the ultimate source of Indo-European. Linguistic Palæontology for Indo-Hittite appears not yet to have been taken in hand ; but we may hope ere long to be informed, from a sifting of the liguistic material now providentially placed at our disposal and put to good use by competent scholars, about the topographical and cultural *milieu* of the people among whom Indo-Hittite became characterised—whether in the Ural Regions, in Central Asia, or in Iran, or in Asia Minor.

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THE AGE OF THE CĀHAMĀNA PṚTHVĪRĀJA III.

By H. C. Ray

The accession of the Cāhamāna Pṛthvīrāja III (c. 1179-92 A.D.) to the throne of Śākambharī brings us to the beginnings of a new period in Indian History. During the period c. 600 to 1100 A.D., roughly a period of five hundred years, the main political currents of India had swirled round the turrets of Kānyakubja. The capital of the ambitious Maukharis (c. 554-600 A.D.) had gradually grown into a huge "city of ten thousand temples", protected by "seven distinct forts washed by the Ganges, which flowed under them like the ocean". Muslim writers describe Kanauj as 'the capital of India, the Ka'aba of the Shamans and the Kibla of the Kafirs'. 'All the treasures of India, we are told 'go to this city as the small streams pour into a large river'. It had numerous armies, wealth and countless weapons and elephants. Imperial power and the possession of this city became almost synonymous. Even its weakest rulers had been described by reliable foreign historiographers as "the chief of all princes in India."Antarvedi, bounded by the holy streams the Jāhnavī and the Kālindī, and its queen the Imperial city of Kānyakubja, practically became the centre of political gravity in India. During these five centuries of chequered and strenuous existence Kanauj passed through many vicissitudes. The poetry of Bhavabhūti, Vākpatirāja and Rājaśekhara, the tramp of swift moving cavalry and clash of arms of the legions of Lalitāditya and Vinayāditya, Dharmapāla and Devapāla, Govinda and Indra, Nāgabhaṭa and Bhoja, Maḥmūd and Vidyādhara, the learned discourses of the Chinese Master of the Law and the prose romances of Bāṇa kept the eyes of India riveted upon the Antarvedi and its imperial city. Thus Kanauj and its rulers gradually acquired in a lesser degree the same position in India which was assumed by Rome and its Caesars in ancient times or by Bagdad and its Caliphs in the Mediaeval world.

During the five centuries noted above, Kanauj remained the metropolis of four empires. But with the end of the 10th and the beginning of the 11th century new forces appeared on the Indian horizon. While the imperial organization of Kanauj began to decline

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and the limits of its empire shrank, the sturdy Turks appeared on the North-western frontier carrying the Islamic flag and the seeds of uncompromising Semitic civilization. The rulers of Kanauj, at this crisis of Indian History, failed miserably to guard the gateways of India against foreign invasion. While Ḍhaṅga and Vidyādhara, Muñja and Bhoja, Gāṅgeya and Karṇa, Bhīma and Someśvara fought and struggled for the crown of Imperialism, the forces of Islam crossed the outer defences of India and took possession of the Punjab. The Gāhaḍavālas inherited the imperial traditions and the legal claims of their predecessors in Kanauj. They were rightly proud of their possession of the Imperial city and the most vital areas of the religious and cultural life of India. But they had neither the strength to enforce their legal claims of hegemony nor the power to defend the Delhi gate-way.

Thus when the Muslims, stepping over the carcass of the valiant Śāhi Dynasty of the Punjab, threatened to burst upon the Madhyadeśa and when the Indian princes, taking advantage of the weakness of Kanauj, fought amongst themselves for supremacy and failed to produce either a Candragupta or an Indian Themistocles, a new power arose in Rajputana which made heroic efforts to save India from Islamization. These were the Cāhamānas of Śākambharī (Sambhor). While the rapid decline of the Yamīnīs, the successors of Maḥmūd of Ghaznī, gave a breathing space to India, the Cāhamānas captured Delhi and the land between the Jumna and the Sutlej. They repeatedly defeated the Muslims, and Vigraharāja (c. 1153-64 A.D.), one of their princes, claimed that he had made *Āryāvarta* "once more the abode of the *Āryas*". By this conquest, the Cāhamānas became the guardians of the western gate to the Gaṅgā-Yamunā valley. They also by this achievement and in natural fulfilment of their ambition became the foes of the Gāhaḍavāla emperors of Kanauj and Benares. The success of the Cāhamānas unforturately synchronized with the rise of a new Muslim power which gradually issued out of the hills of Ghūr. Before the Cāhamānas could sufficiently consolidate their position, Mui'zzud-Dīn Muḥammad ibn Sām had conquered Peshawar in 1179 A.D. and Lahore in 1186 A.D. The Cāhamānas, by virtue of their geographical position and their claim to be the real protectors of the *Āryas*, had to bear the first shock of attack by this Muslim power.

From Pṛthvīrāja I (c. 1105 A.D.) to Pṛthvīrāja III (c. 1179-92 A.D.), the Cāhamāna power had grown continuously. With the removal of the last of the Yamīnīs, Khusrau Mālik Tāj ud-Daulah (c. 1160-86 A.D.)—the Ghūrī and the Cāhamāna stood face to face. "The Muslim knew that the untold wealth of the rich cities and temples of the sacred Ganges-Jumna valley and beyond could only be secured

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by the destruction of this Hindu power which held the key to the Delhi gate. The Cāhamāna knew, and expected no quarter."

The records of this period indicate that Pṛthvīrāja III was the most important figure on the Indian political stage during the last quarter of the 12th century. "His dominions included most of modern Rajputana and extended roughly from the Sutlej to the Betwa and possibly to the Ken, skirting the river Jamuna on the North. The activities of the Caulukyas were paralysed by intrigue and dissensions, while the Senas and the Gaṅgas were far distant from the North Western frontier of India. By his victories over the Candellas and the Gāhaḍavālas and his command over the cis-Sutlej districts, he had constituted himself the main barrier against the advance of the Turks from the Indus Valley."[1] If the Yaminīs could have held the new body of the Muslims for a little more time, there was every possibility that Pṛthvīrāja would have replaced the Gāhaḍavālas and founded the fifth Kānykubja Empire.

In this work of building up a strong political and military power Pṛthvīrāja was assisted by a number of able officers. The *Pṛthvīrāja-vijaya* contains the names of two such officers. These were Kādamba Vāsa[2] and Bhuvanaikamalla. "While Kādamba Vāsa is compared with Hanumān, Bhuvanaikamalla is described as a veritable Garuḍa, who served Pṛthvīrāja and his brother Harirāja, the two incarnations of Rāma and Lakṣmaṇa. 'Just as Rāma, with the help of Garuḍa and Hanumān crossed the sea and did other things, so Pṛthvīrāja, with the help of Hanumān-like Kādamba Vāsa and Garuḍa-like Bhuvanaikamalla, did many things for the welfare of the people'[3]." Another officer Govinda[4] is mentioned by Muslim and some Hindu records. The *Ṭabaqāt-i-Nāṣirī* seems to indicate that he was in charge of the frontier city of Delhi. In fact he appears to have been the most important of the Wardens of the Marches of the Cāhamāna empire. It was his special task to keep a vigilant watch on the Sutlej and guard the Delhi-gate from the marauding Turkish hordes. In the first battle of Tara'in (1191 A.D.) he led the van of the Cāhamāna army and was mainly responsible for the victory of Pṛthvīrāja over Mui'zz ud-Dīn Ghūrī. The *Ṭabaqāt-i-Nāṣirī* gives the following description of this battle :—

"When the ranks were duly marshalled the Sulṭān seized a

1. Ray, *Dynastic History of Northern India,* Calcutta University Press, (DHNI), Vol. II, 1217.

2. *Ibid,* p. 1083 fn. 3. The name is sometimes given as Kadamba Vāma.

3. DHNI, Vol. II, p. 1083.

4. *Ibid,* p. 1088, fn. 2. Some authorities give the name as 'Kandi Rai' *(TA),* or 'Chawund Ray' *(TF).*

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lance and attacked the elephant on which Govind Rāe, Rāe of Delhī, was mounted, and on which elephant he moved about in front of the battle. The Sulṭān-i-Ghāzī, who was the Haidar of the time, and a second Rustam, charged and struck Govind Rāe on the mouth with his lance with such effect that two of that accursed one's teeth fell into his mouth. He launched a javelin at the Sulṭān of Islām and struck him in the upper part of the arm and inflicted a severe wound. The Sulṭān turned his charger's head round and receded, and from the agony of the wound he was unable to continue on horseback any longer. Defeat befell the army of Islām so that it was irretrievably routed, and the Sulṭān was nearly falling from his horse. Seeing which a lion-hearted warrior, a Khalj stripling, recognized the Sulṭān and sprang up behind him, and, supporting him in his arms, urged the horse with his voice, and brought him out of the battle. On the Musalmān forces not seeing the Sulṭān, lamentation broke from them, until they reached a place of safety where the defeated army was safe from pursuit by the infidels".[5]

This valiant officer was slain when Pṛthvīrāja III was defeated and killed in the second battle of Tara'in (1192 A.D.).[6] Recently attention has been drawn[7] to another officer of the great Cāhamāna ruler. Information about this officer is contained in a work called *Viruddha-vidhi-viddhaṁsa* of the great *Smārta* Lakṣmīdhara and the facts may be briefly tabulated as follows :—

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5. DHNI, II, p. 1088.
6. *DHNI*, II, 1090.
7. *IHQ*, Vol. XVI, 1940, pp. 567-73.

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Sthāneśvara.....Nāgara Brāhmaṇa of Ānandanagara[8] belonging to the Kāśyapa gotra ; famous for his learning (4 *Vedas, Tarka* and *Mīmāṃsā*).

In his *anvaya*

Skanda.....*Sandhivigrahikāmātya* of Someśvara, lord of Śākambharī.

Soḍha ..... Succeeded to his father's post.

Skanda....*Senāpati* of Pṛthvīrāja : defeated the Turuṣkas.[9] After Pṛthvīrājā was killed by the Turuṣkas, he placed Harirāja on the throne : after some time he entered the *turyāśrama.*

Vāmana....*Sāndhivigrahika* to Pṛthvīrāja ; after his brother had entered the 4th stage of life he went to the city of Anahillapāṭaka with two million and two thousand *Drammas.*[10]

Malladeva=Śrīdevī....Author of *Subhāṣitāvalī* and learned in *Sāhitya* and the *Arthaśāstras* of Kauṭilya and others. Initiated into *Advaitajñāna* by the revered Bodhabhāratī. At last being fed up with the *siddhāntas* of the *Smṛti* and *Vedānta,* he composed the *Mahākāvya Apratima-rāma.*

As is usual in such cases, the accounts contain nothing but praise of the achievements of the family of ministers. Like the Bādal Pillar inscription of Gurava Miśra[11] and the *Prabodha-candrodaya*[12] of Kṛṣṇa

8. Modern Vadnagar in Baroda State ; sometimes called Ānandapura. See *DHNI,* II, p. 849, 964, 984, fn. 4., etc.

9. Mss. gives *Kuruskan.* 10. Anahillapātaka is same as Anhillavāṭka, Anhilla-pāṭaka, modern Anavada about 3 miles from Patan in Gujarat.

11. *EI,* II, pp. 160-67 ; *Gauḍalekhamālā,* pp. 70 ff. (under the name Garuḍa-stambha-lipi). Also *DHNI,* I, p. 300. 12. *DHNI,* II, pp. 695 ff.

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Miśra, success of princes is said to have been entirely due to the ability and skill of the ministerial family. If one were to compile history only from such accounts then the kings would be reduced merely to automatons or pawns in the art and science of war and administration[13]. But though such writings try to produce exaggerated impressions about the importance of ministers, they usually refrain from writing anything positively insulting to their patrons. The reason is not far to seek. The authors and their families usually lived within the power of the dynasties they served and it was therefore dangerous for them to indulge in such language. But when, as in the present case, the patrons and their family had fallen on evil days and the writer and the family and person of the minister were safe in the capital of a foreign and unfriendly ruler there was no harm in using abusive language about their former patrons while praising themselves. Thus the *Viruddha-vidhi-vidhvaṁsa* not only makes Pṛthvīrāja III a worthless ruler who was absolutely dependent on Skanda and Vāmana for his military and administrative success but also paints the great Cāhamāna in very dark colours. We are told that when once the Brāhmaṇa *Senāpati* Skanda was fighting elsewhere, Pṛthvīrāja, who though alive was as good as dead *(Jīvanmṛta)* and steeped in the vice of *Nidrā-vyasana,* was slaughtered in battle by the Turuṣkas. The cause of this bitter attack on the Cāhamāna prince is clear from certain verses of the Sanskrit work cited above. It seems that both Skanda and Vāmana suffered an eclipse due to the machinations of another Nāgara Brāhmaṇa who was jealous of the power and position of the two brothers at the court of the Cāhamāna king. Neither the inscriptions nor the historical records of the Hindus and the Muslims know Skanda and Vāmana as pillars of the kingdom of Pṛthvīrāja III. The men who really counted were men like Kadamba Vāsa, Bhuvanaikamalla and Govinda Rāya. The retirement of Vāmana with immense wealth to Anahilla-pāṭaka shows that there might be a good deal of truth in the reports about the dishonesty and avarice of the brothers which seems to have brought about their downfall. They did not apparently believe in retiring into honourable poverty after a period of service under the state.

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13. Compare the position occupied by Rākṣasa or Cāṇakya and their lords the Nanda or the Maurya princes in the *Mudrā-rākṣasa* of Viśākhadatta.

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DRAVIDIAN- & MON-KHMER—SPEAKERS OR AUSTRALIDS? A STUDY IN VARIATION

By A. K. Mitra & B. K. Chatterji.

While discussing the blood-group distributions of the Bengalis on a recent occasion, we had drawn attention to the fact that whereas the South-Indian aboriginal tribes, viz., the Chenchus, Iluvas, the "Pre-Dravidian" tribes of Madras and the Paniyans show a low incidence of B, thus differing from the more northern tribes, viz., the Bhils, Oraons, Mundas, Santals, Māler, Malpaharias and Maria Gonds who exhibit considerably higher percentages of B, the two groups agree in differing considerably among themselves. We had also put the question, following a consideration of the raciological hypothesis of v. Eickstedt, whether the serological character of the Central and East-central tribes was not due to miscegenation with the higher racial elements of the Indian population.[1] Since then, we have learnt of an attempt at a racial classification of these tribes, by Macfarlane and Sarkar, who apply the results of their serological researches as well as the anthropometric data of various investigators to this end. In summing up their results, they suggest that "there may have been *two original racial stocks*[2] [among the Dravidian-speakers], one resembling the Paniyan or Mālér, with little of B, and the other resembling the Oraons, with little of A and plenty of B." On the other hand: "The Mundari-speaking peoples, whose language possesses a common substratum with the Mon-Khmer dialects, resemble the Mon-Khmer speaking tribes of South-east Asia in having a significant amount of both the agglutinogens A and B."

Before we can proceed to examine the above hypothesis in detail, it is but proper to point out that racially distinguishing the Dravidian- from the Mundari-speaking tribes the authors ignore the facts which led Risley,[3] Turner[4]

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1. Chatterji, B. K. and Mitra, A. K.,—Blood Group distributions of the Bengalis and their comparison with other Indian Races and Castes. Indian Culture, VIII, pp. 197-217.

2. Macfarlane, E. W. E., and Sarkar, S. S.—Blood Groups in India. Amer. Jour. Phys. Anthrop. XXVIII, 1941, pp. 397-410. Italics ours.

3. Risley, H. H.: The tribes and castes of Bengal, 1891, etc.

4. Turner, Sir Wm.: Contribution to the Craniology of the People of the Empire of India, II. *Trans. Roy. Soc. Edin.* XL, p. 59 ff.

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and Guha[5] to claim their fundamental unity. They are also unaware of a recent attempt to differentiate between the two groups, though their results are in the main similar. We refer to the work of Majumdar[6] who asked: "(1) Whether the Austric-speaking tribes in India or more particularly the Munda-speaking groups represent the same racial type? (2) Is there any racial difference between the Munda- and the Dravidian-speaking groups?" With certain reservations Macfarlane and Sarkar may be said to reply to the above questions in the affirmative; and, incidentally, their hypothesis not only corroborates that of Majumdar, but has the distinction of pushing it further.

As regards methodology, we are constrained to observe that there is some vagueness about the role of anthropometric data in their hypothesis. In explaining the gradient of the values of q which range from 0.08 (Paniyans) to 0.35 (Bhils), being equal to the variation in q for the whole world, the authors suggest that "there were two aboriginal peoples, one having the physical characters of the Paniyans or Mālér with a low content of B and the other having the physical characters of the Oraons having a low content of A and more B who took part in the racial make-up of the aboriginal population of India." This is certainly an attempt to differentiate the tribal groups racially not only on the basis of their physical characters, but also on the basis of their blood group distributions. The authors indeed admit that "Blood-group data can not be correlated with physical characters," but are not evidently prepared to extend this absence of correlation to physical character-complexes. In practice, however, there is no distinct attempt to distinguish the three groups of tribes by means of their physical characters. There is only an undercurrent of thought that the purer a tribe, the shorter should it be in stature and the more pronounced should be its chamaerrhiny; we find the same criteria applied to the Dravidian- as well as to the Mundari-speakers. In attaching too much significance to these differences, the authors appear to forget that *some* variations are bound to occur even within members of the same race. To quote E. Fischer (Berlin) on the affinities of the Weddas, the Senoi and the Toala: "Aber auch die sehr exacte Einzeluntersuchung hat nur verschwindende Unterschiede und damit die wirkliche Einheit feststellen können. An Grösse sind Wedda und Toala gleich, Senoi etwas kleiner, an Farbe Senoi und Wedda gleich und Toala etwas heller, die Haarform, Bartform ist bei allen drei dieselbe; die Kopfform

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5. Guha, B. S.: Racial Affinities of the Peoples of India; in Census of India, 1931, I. 3. Simla, 1935. pp. lxii-lxiii.

Idem.—The Aboriginal Races of India. *Science and Culture*, IV, 1935. pp. 677-683.

6. Majumdar, D. N.—The Relationship of the Austric-speaking Tribes of India, with Special Reference to the Measurements of Hos and Saoras. *Proc. Ind. Acad. Sci.* VII. 1938. pp. 1-21.

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bei Wedda schmäler als den anderen beiden, der Index ist für Wedda 73, für Senoi 78.5, für Toala 80.4; die Physiognomie, Nasenform u. s. w., die Proportionen völlig gleich!"[7]

We select the more important of the anthropometric data cited by Macfarlane and Sarkar for subsequent reference in the following table:

TABLE I.

Averages of the anthropometric data on Dravidian- and Mundari-speaking tribes.

Tribes	Dravidian-speakers. Group I					Dravidian-Group II	Mundari-speakers	
	Kanikkar (Iyer)	Paniyan (Thurston)	Chenchu (Thurston)	Chenchu (Guha)	Mäler (Sarkar)	Oraon (Basu)	Munda (Basu)	Santal (Sarkar)
Number measured	240	25	40	23	188	250	250	168
Characters and Indices								
Stature (cm)	153·4	157·4	162·5	165·0	156·6	161·8	158·2	159 6
Max. Head length (mm)	182·0	184·0	182·0	185·2	184 2	186·2	187·2	187·0
... Headbreadth ...	135·0	136·0	135·0	134·8	137·2	138·2	138·1	138·9
Bizygomatic breadth ...	123·0	126·0	–	129·0	131·0	130·7	131·7	133·5
Nasal height ...	40·0	40·0	–	48·2	47·2	48·7	48·4	48·7
Nasal breadth ...	36·0	38·0	–	39·0	39·6	40·2	40·2	37·9
Total facial height ...	101·0	–	–	110·0	109·7	115·8	111·8	114·7
Length-breadth Index of the head ...	74·0	74·0	74·3	72·9	74·5	74 3	74·3	73·8
Nasal Index ...	89·9	95·1	81·9	81·4	84·3	82·7	83·3	73·5
Total facial Index ...	81·6	–	–	85·3	83·7	88·7	84·9	85·8

Attention must be drawn to the sizes of the Paniyan and Chenchu samples (25; 23 & 40) in the above table; the value of such small samples is not beyond question. We are reminded of a certain note on the work of Cipriani[8], pointing out that his figures for the Kadir [19 ♂, 12 ♀], Kanikkar [20 ♂, 15 ♀] and Urali [21 ♂, 10 ♀] are "scarcely statistically significant."[9] The same note also observed: "The table in which the author [Cipriani] compares his results with those of Holland published thirty-five years ago is illuminating, because it demonstrates the reliability of the cephalic index and the unreliability of the nasal index for comparative purposes when different workers are involved." The same objection could be made to Thurston's data on the nasal indices of the Paniyans

7. Fischer, E.–Spezielle Anthropologie; Rassenlehre: *in* Kultur d. Gegenwart, III, Anthropologie, Leipzig and Berlin, 1923, p. 196.

8. Cipriani, L.–Su alcuni gruppi umani del Curg. *Archivio per l'Antropologia e la Etnologia.* LXV. 1935. pp. 87-124.

9. Science Notes: in *Current Science,* August, 1936, p. 105.

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and the Chenchus, also on the strength of another table of Cipriani's, on the Todas of the Nilgiri hills, of which the following is an extract :—[10]

TABLE Ia.

Averages of the Anthropometric data of various investigators on the Todas.

Authors	Year.	No.	Stature (cm).	Cephalic Index.	Nasal Index.
Mantegazza	1886	19	167·8	75·2	–
Schmidt	1894	22	168·9	73·1	76·0
Thurston	1909	81	169·6	73·3	74·9
v. Eickstedt	1926–29	73	171·9	72·2	68·3
Cipriani	1935	61	168·3	73·0	66·1

It is to be noted that whereas 20 Kanikkars measured by Thurston yielded a nasal index of 84·6 in average the same number measured by Cipriani had an average of 73·7 only; Iyer's average for 240 Kanikkars being 89·9 ! Clearly the data of all the investigators brought together in their table by Macfarlane and Sarkar are not reliable in the same sense and to the same extent. Too much significance should not be attached, at any rate, to all measurements taken before the technique prescribed by the Monaco agreement came to be in use in India.

II

The original racial stocks.

Of the first racial stock we are told that "Blood group data and physical measurements testify to a relation between the Paniyans, Kanikkars and Chenchus of South India with the Mālér of Bihar." Among these the Paniyans are claimed to "contain a marked negrito element," and are presumed to have "maintained their racial stock almost unmixed in their isolated mountain retreat." "The Chenchus", to quote Howells, "are a group which Guha considers best portrays the aboriginal Veddoid, or non-pygmy element in India,....The one individual of this tribe whose photograph is published by Guha [1935] looks extraordinarily like an Australian."[11] As regards the Mālers, two of their skulls studied intensively by Sarkar led him to conclude that "No significant racial difference can....be said to have been revealed between the Mālér and the other cranial series [Wedda] in spite of the undoubted smallness in the size of the former."[12] The first original racial stock of Macfarlane and Sarkar, therefore,

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10. Cipriani, L.—I Toda. *Archivio per l'Antropologia e la Etnologia,* LXVII, 1937, pp. 1-59.

11. Howells, W. W.—Anthropometry of the natives of Arnheim Land and the Australian Race Problem. *Peabody Papers,* XVI, 1. Cambridge, Mass., 1937, p. 63, citing Guha, 1935, p. xlvi ff. *Ibid.* pp. lxii-lxiii ; *also* Pl. II. *fig.* 7.

12. Sarkar, S. S.—On the Osteology of the Mālér. Trans. Bose Res. Inst. XIV, 1938-39, pp. 31-56.

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is made up of Negritos and Weddids, provided the available information is correct.

The Paniyans, conceived to be the purest of these tribes, form the cornerstone of this hypothesis. They have the shortest stature, the broadest noses (whether the measurements are correct and the data statistically significant has been questioned above), the highest percentages of A and the lowest of B.[13] The Chenchus "stand closer [to the Paniyans] with respect to blood groups than any tribe examined," with "less of B than of A". Yet their B amounts to 18% as compared to Paniyans, B = 7.6%. Some of their B is considered due to miscegenation with forest guards. Correspondingly, their taller stature and finer nose in both the series of Thurston and Guha, from Nallamallai Hills, Kurnool and Hyderabad respectively, testify to "racial intermixture". The Kanikkars (211) who show a distribution of O = 51.18% ; A = 18.48% ; B = 29.86% and AB = 0.47% (which indicates according to Macfarlane and Sarkar, either genetic inequilibrium or technical defects in the tests), are also claimed by Karunakaran to have derived their high B through intermixture with forestguards and plainsmen, though perhaps not all of it according to Macfarlane and Sarkar! Serologically "their position seems to be somewhat akin to the Oraons" (—received their B% from others!) who are taller than the Paniyans (+4.4 cm.) and less platyrrhin! Is it not altogether strange that deriving, as they are supposed to do, *some* of their B% from the taller Tamils, the Kanikkars should have continued to keep 4 cm. shorter in stature than the Paniyans, whereas the Chenchus and Oraons behave in exactly the opposite manner? Perhaps also there is no room for doubting that some of the O% of the Kanikkars could have been transmitted with B in a recessive manner from the same plainsmen and forestguards!! *En passant,* it would be interesting to find out if all the forest guards responsible for the "Rassenschande" on Chenchus, Kanikkars etc., are of the group B!!!

The Māler are claimed to "show the northernmost thrust of the aboriginal group of people with southern affinities before they were overrun by the Mundari-speaking peoples." Our colleagues thus corroborrate Howells, who on the basis of Risley's data concluded that the "Māler appear to resemble the

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13. Of the Poulayans, the other Negrito group (Guha, *loc. cit.*), 45 blood samples were tested by Macfarlane. The percentages, combined with 4 Kanikkars and 1 Ulladan were : O = 48 ; A = 30 ; B = 9 and AB = 12. Perhaps the sample was too small, but Macfarlane and Sarkar have drawn important conclusions from smaller samples. The contrast with the Paniyans is striking (O = 20% ; A = 62.4% ; B = 7.6% and AB = 10%) in respect of O% and A%. For 16 Poulayans of Maliatur, Lapique gives : Stature = 154.9 cm., Cephalic Index = 76.9 and Nasal Index = 76 ; also for 16 Poulayans of Anaimalais Hills, Stature = 155 cm., Cephalic Index = 71 and Nasal Index = 78.

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jungle tribes of the south more than any other group."[14] A comparison of the tables of anthropometric data given by Howells (no. 35) and Macfarlane and Sarkar (no. 3) however does not make the above conclusion inevitable. For reasons stated above, the shorter stature of the Māler will not necessarily prove their southern origin and not much significance can be attached to Risley's nasal index (94.5). It will be clear from Table I that the Māler share the not infrequent tendency of the East-central aborigines towards broader zygomae, and if the nasal dimensions of the southern tribes, viz., the Kanikkar and the Paniyan have been correctly shown in the data of Iyer and Thurston, an appreciably higher and a trifle broader nose. (The Chenchu, who are geographically located midway between the two groups occupy an intermediate position.) According to the authors, however: "Serologically the Mālér link up with the Chenchus and Kanikkars." But the Māler blood-group formula is made up of two groups,[15] one of which comprising 139 subjects (O = 46.76% ; A = 15.83% ; B = 31.65% and AB = 5.76%) shows a striking similarity with the 155 Oraons (O = 47.10% ; A = 12.90% ; B = 34.84% and AB = 5.16%). This is specially interesting in view of the tradition of common origin of the Oraons and the Mālers (Rājmahālis)—and their ultimate separation, which Dalton found among the former seventy years ago, and which is denied by the Mālers.[16] The second group comprised 96 subjects, all from villages situated on the banks of the river Gumāni, and showed O = 35.62% ; A = 39.58% ; B = 19.79% and AB = 5.21%, comparing not badly with the Chenchus. Such comparison would not be, however, justified in view of Sarkar's statement that the "data. . . is highly interesting in having the highest percentage of A (39.58%) and the lowest of B (19.79%) ; this may not improbably be due to high inbreeding within this locality." The pooling of the two samples is objectionable from every point of view.

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14. Howells, W. W.—*op. cit.* p. 63.

15. Sarkar, Sasanka Sekher.—Blood Grouping Investigation in India, with Special Reference to Santal Perganas, Bihar. *Trans. Bose Res. Inst.* XII, 1936-37, pp. 89-101. Of 234 Hill Māler actually investigated, O = 42.3% ; A = 25.2% ; B = 26.9% and AB = 5.6%. For the Oraon sample, see *Idem,* Analysis of Indian Blood Group Data with Special Reference to the Oraons, *Trans. Bose Res. Inst.* XV, 1942-43, which appears as this is going to the press. The sample is made up of three groups of *émigrés* which vary considerably in their blood-group percentages. It is doubtful if such small groups of *émigrés* can accurately reproduce the blood-group distribution of the original population. The sample is therefore not satisfactory.

16. Dalton, E. T.—Descriptive Ethnology of Bengal, Calcutta, 1872, pp. 245-246. *Cf.* Sarkar, Sasanka Sekhar,—The Mālérs of the Rajmahal Hills, Calcutta, 1938, pp. 1-12. This author adopts the Māler point of view.

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The second original racial stock, "with little of A and plenty of B," comprises the East-central Dravidian-speakers, viz., the Oraons and the Gonds. The greatest importance is attached by Macfarlane and Sarkar to the Oraons, who are 4.4 cm. taller than the Paniyans and show less broad noses. The Bison-head Maria Gonds are said to stand close to the Oraons in their physical features, with the exception that the "average cranial length of the Maria Gonds is somewhat smaller than that in the Oraons which is possibly correlated [!!] with the longer facial length [= height] of the latter." Serologically, however, the two tribes are distinct. The Oraons are claimed to resemble the Kanikkars, having "the next highest frequency of group O." "It is extremely difficult to account for their very low frequency of gene A;" "they may have received group B from other peoples on their migrations." "On the other hand the blood-group figures of the Maria Gonds are not significantly different from those of the Mundas and Santals of Bihar."

It may not be unpardonable if we seek to supplement the above statements by information from other sources. Reference has already been made to the tradition of common origin of the Oraons and the Mālers. According to the same tradition the Oraons, after their separation from the Mālers, appeared on the north-western and western portions of the plateau of Chota Nagpur, then thinly populated by the Mundas. The latter, partial to the Jhūm system of tillage even in 1872, seem to have retired from the vicinity of the Oraons, their superiors in the knowledge of cultivation by ploughs, though a few stragglers behind were noticed by Dalton in the specially Oraon quarter of Chota Nagpur, still living in villages founded by their ancestors.[17]

In the opinion of Howells, who compared Risley's data on the Oraons, Mundas and Mālers, "the present physical affinities of the Oraons are with the Munda, and not with the Māle. If the Oraon once belonged to the Māle, something has modified the nose and stature of one of them."[18] If we leave alone stature, which is more *"labile"* than other characters, that is not the impression gained from a comparison of Basu's and Sarkar's data on the three tribes (Table I), their most appreciable difference being in total-facial height, wherein personal equation is likely to affect the results. In his analysis of the Māler crania, Sarkar (1938-39) showed that in cranial shape the Māler ♂ cranium is closely similar to the Munda ♂ and Oraon ♂ crania, though smaller in size; on the other

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17. Dalton. *op. cit.* p. 246; *also* Roy, S. C.—The Oraons of Chota Nagpur, Ranchi, 1915, pp. 36-38. The claim of the southern origin of the Oraon as put forth by Roy (*op. cit.* pp. 17-27) rests simply on their having a monkey totem, and is of no historical significance. The tradition of their having been in possession of Rohtasgarh cannot be taken seriously, as no historical evidence is adduced.

18. Howells, W. W., *loc. cit.*

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hand the Māler ♀ cranium differed from the Munda ♀ in general shape and form, "due to the marked forward growth of the Mundā skull," notwithstanding that the two agreed in a large number of characters. Undoubtedly the materials were meagre for all the groups; but they should not be overlooked, particularly in view of the remarkable agreement of the blood-group distributions of the less inbred section of the Māler (139) and the Oraons (155). Some of the similarities as well as dissimilarities between the Māler and the Oraons may be accounted for by their absorption of foreign elements, the exact nature of which is a matter for investigation.

Meanwhile, indications are not wanting that miscegenation has been going on between these aborigines and their immediate neighbours. Dalton, after describing the mild "Tamulian" type of features of the Mālers observes: "This would answer very well for a description of the better looking Oraons, especially where there is a reason for suspecting some slight intermixture of blood, and it is said that Pahārias were in former days much given to the capture of wives from the plains...."[19]. Of the Oraons, Dalton gives the following account of his personal observations: "The colour of the majority is of the darkest brown, almost black, but the observer may not only pick out individuals in the crowd who are of complexion as light as the average Hindu, but may find villages in which all the Oraon inhabitants are light brown to tawny. The fact is, they have to a surprising degree the faculty of assimilating their own colour and features to those of the people amongst whom they dwell, and it may be generally remarked that when there are good looking Aryans in the same village with Oraons, the complexions of the latter become brighter, and the features more in accordance with a classical standard of beauty. Not long ago a man came to me whom I took to be a follower of the prophet from the west country, but I ascertained that he was a scion of a respectable Oraon family. I went to his village and found it to be a small place inhabited by Oraons and Pathans; the latter had been settled there for many generations, and were living on terms of perfect amity with the primitive inhabitants notwithstanding the intervention of pigs. I could not help noticing aloud the singular resemblance between the two families; the remark was received with some indignation, but more laughter, and the indignation was quite subdued when I told those concerned that women were in the habit of bringing forth children in the image of the people they *saw* daily, as well as with the lineaments of their ancestors. The old wives all acquiesced in this view."[20]

Indications are not wanting that different sections of the Gonds have been

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19. Dalton. E. T.—*op. cit.* pp. 272-73.
20. Dalton, E. T.— *op. cit.* pp. 250-51.

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exposed to miscegenation with the Hindus in different degrees.[21] According to recent observers,—"There is not the least doubt that the Gonds of the more open and civilised country, comprised in British Districts, have a large admixture of Hindu blood. They commonly work as farm servants, women as well as men, and illicit connections with their Hindu masters have been a natural result. This interbreeding, as well as the better quality of food which those who have taken to regular cultivation obtain, have perhaps conduced to improve the Gond physical type. Gond men as tall as Hindus, and more strongly built and with comparatively well-cut features, are now frequently seen, though the broad flat nose is still characteristic of the tribe as a whole."[22]

Reference has already been made to the tradition of the closer association of the Oraons with the Mundas in the western and the north-western parts of Chota Nagpur. Recent mixture is also not ruled out. It is not surprising, therefore, that Guha who tested Basu's Munda and Oraon data[23] by means of Pearson's formula of Racial Likeness found a Co-efficient (1.79) indicating very intimate relationship between the two tribes. According to these Co-efficients, "the Oraons do not exhibit any relationship with any of the South Indian tribes. But as the values of the C. R. L's between these tribes and the Bhils of Central India are even higher it is probable that they do not represent true values of relationships between these tribes, but are rather due to individuals of mixed parentage being included in Basu's samples of the Mundas and Oraons which were obtained from the outskirts of the town of Ranchi."

There is thus a *primā facie* case for some at least of these East-central aboriginal tribes having absorbed foreign elements. To what extent, if at all, has such miscegenation affected the blood-group distributions and the racial purity of these tribes ? We do not know. Till this has been determined by a thorough investigation of the neighbouring populations who may be considered to have been in the position of the *other parties* to such miscegenation (and the same applies to the gay forest guards of the south), any attempt to trace the migrations of the Oraons, Mālers etc., from the south by means of a very limited number of physical characters (metrically considered) and blood-group distribution can only be regarded as unprofitable speculation. And without first of all securing physical and serological data on such neighbouring populations as an *indispensable control,* it would be a grave error of methodology to seek to find

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21. Forsyth, J.—The Highlands of Central India, London, 1889, *cited by* Crooke, W., *on* "Gonds". Hastings' Encyclop. VI. 1913. p. 312 ff.

22. Russel, R. V., and Hiralal, R. B.—The Tribes and Castes of the Central Provinces of India, III, London, 1916, pp. 118-19.

23. Basu, P.C.—The Racial Affinities of the Mundas, *Trans. Bose. Res. Inst.* VIII, 1932-33. The Racial Affinities of the Oraons, *Trans. Bose. Res. Inst.* IX, 1933-34. Guha, B. S.—*op. cit.* (1935) pp. *xlix-l.*

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serological affinities between the Mundari-speaking tribes of Anterior India and the Mon-Khmer-speakers, simply under the lure of their linguistic affinity.

The Mundari-speakers.

The most ambitious part of the hypothesis of Macfarlane and Sarkar relates to the Mundari-speakers, viz., the Mundas, Santals and Korkus. The authors associate with these the Maria Gonds, who "stand near to the Oraons with respect to physical features"; yet their blood-groups "are not significantly different from those of the Mundas and Santals of Bihar." Claimed to belong here are also the Bagdis, who differ from many of the aboriginals in having a lower percentage of O. About the physical characteristics of this group we are not told much, except that the "Mundas appear to be less mixed than the Bagdis and Santals. The fact that they possess the lowest mean stature and highest average nasal index (Basu,' 32—'33) among the Bagdis, Maria Gonds, Bhils,and Santals points to the same thing." And this in total disregard of Guha's remarks *(ante)* about the mixed nature of Basu's Munda sample! From the serological point of view the authors conclude: "The Mundari-speaking peoples, whose language possesses a common substratum with the Mon-Khmer dialects, resemble the Mon-Khmer speaking tribes of South-east Asia in having a significant amount of both the agglutinogenes A and B. The Khasi data show a somewhat lesser content of B and more of the Tibetan and Central Chinese type of distribution."[24] Elsewhere, Macfarlane and Sarkar recognise "the presence of both agglutinogens A and B in almost equal doses" to be characteristic of the Mon-Khmer peoples. Notwithstanding their claim: "There is no significant difference between the blood-group distributions of the Santals, Mundas, Bagdis, Maria Gonds" etc., this so called Mon-Khmer characteristic is found among the Mundas only, the Santals as shown by the authors having "a regular preponderance of group B over A by 12—15%." (Yet their physical differences from the Mundas may be due to slight differences of technique in the Santal sample of Sarkar!) The Korku tested by Macfarlane exhibit also an appreciable preponderance of B% over A%. To explain this phenomenon, Macfarlane and Sarkar surmise that the "higher percentage of blood-group B, now found in some of the Mundari speaking tribes may well be due to intermixture with the aborigines rich in group B who were already present in India." So that the Mundas alone may be said to have preserved the original serological group character claimed to have been brought from abroad. In the following

24. In pointing out the similarities between the A and B percentages of the Mundari- and the Mon-Khmer-speakers Macfarlane and Sarkar are cautious enough to make the reservation that "nothing definite can be said for any relationships in these blood group distributions because of the paucity of data." The paucity of the data is the sole reservation they make.

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table we incorporate the values of *p*, *q* and *r* of the Mundari and Mon-Khmer groups cited by the authors (Table II.).

TABLE II.

p, q and r of the Mundari- and the Mon-Khmer-speakers.

Tribes & Peoples	No.	p	q	r	Investigator	Tribes & Peoples	No.	p	q	r	Investigator
Korku	140	·250	·313	·447	Macfarlane	Tonkinese	397	·148	·187	·654	Hirschfeld & Hirschfeld
Santal	339	·160	·249	·575	Sarkar	Buginos (Celebes)	217	·218	·200	·589	Lehmann
Munda	120	·219	·214	·557	Macfarlane	Macassarese	195	·228	·234	·536	,,
Khasi	200	·261	·168	·563	,,	Ambon Malays, Molucca	1471	·128	·128	·747	Bijlmer
Annamites	500	·161	·198	·648	Hirschfeld	Javanese, Padang Hospital	1346	·173	·198	·632	Bais & Verhoef

Attention is drawn to the Ambon group with its very high value of *r*, and very low values of *p* and *q*, which reflect on conditions peculiar to the Moluccas and New Guinea ;[25] the group may be therefore excluded from this comparison. The Buginos and the Macassarese, on the other hand, while showing the greatest resemblance to the Mundas, are distinguished from the Indo-Chinese, Tonkinese, and Javanese by their lower values of *r* and higher values of *p* and *q*. As they are included among Malayic peoples in a broad sense, the affinities of the Mundari-speakers, Buginos and Macassarese are best compared with other Malay samples. In the following table we incorporate the figures after Streng.[26]

TABLE IIa.

Percentages of p, q and r of the Malayic peoples.

Peoples.	No.	p%	q%	r%
Formosan aboriginals-Furuhata	6983	19·9	15·7	64·4
Formosans—Furuhata	1286	17·4	15·9	66·7
Indo-Chinese	1092	16·8	19·4	63·8
Javanese	10762	15·5	22·1	62 4
Sumatranese Padang Hosp.—Bais & Verhoef.	546	15·0	18·6	64·4
Philippinos	2170	14 7	19·2	66·1
Malays	9091	15·4	17·8	66·8

25. Bijlmer, H. J. T.—The relation of blood-groups to race, and some personal enquiries in the south-west Pacific. C. R. Congr. Int. Anth. et Eth. London, 1934. pp. 81-82. 26. Streng, O.—Die Bluteigenschaften (Blutgruppen) der Völker, besonders die der Germanen. Hirt-Festschrift (1935). I. pp. 407-435.

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The peoples included in the above table, though of the same group as the Buginos and the Macassarese, are all characterised by higher percentages of *r* and low values of p+q together. Only the Javanese show comparatively higher values of p+q, and the tendency of *q*% to preponderate appreciably over p%. It is possible that the Buginos and the Macassarese also diverge from the others owing to local circumstances which can not be discussed here. On comparison with the Mundari-speakers, it is found that the latter have lower values of *r* than the other Malayic peoples excepting the Buginos and Macassarese, and higher values of p+q. If we are to go by these values alone, the Korku clearly do not belong here. We could not say the same of the Mundas and the Santals, unless we were prepared to exclude the Buginos and the Macassarese; indeed they could be presumed to have diverged in the same way, or in a number of ways but with the same result. Nor should we hesitate to accept such a conclusion, provided sufficient evidence were forthcoming that the Mundas and Santals are Malayic peoples; or that they stand to the latter as more or less similar fragments of the same old *ethnos* or at least they are racial conglomerates composed of the same elements as the Malayic peoples, independent in origin but with convergent tendencies in regard to blood-group distribution. This question seems to have already occurred to P. W. Schmidt in connexion with the racial affinities of the "malay-polynesion" peoples, whom he proposed to re-name "Austronesian" on linguistic grounds. He writes: Entspricht nun auch dieser grossen linguistischen Einheit, bilden diese hinter– und vorderindischen Völker mit den austronesischen auch eine Rasse? Wenn ich statt des Namens „ austronesisch " noch den alten Namen „ malayo-polynesisch " gebrauchte, würde ich dadurch an einer bejahenden Antwort sehr gehindert sein. Denn es ist ja bekannt, dass gerade die Malaien, dann auch die Javanesen und die gesamten philippinischen Stämme, entschieden brachykephal sind, straffes Haar und vielfach auch Neigung zu obliquer Augenstellung und Kurz- und stumpfnasigkeit aufweisen. . . .Aber die neueren Messungen lassen doch immer mehr hervortreten, dass auch in Indonesien neben dem brachykephalen auch der dolichokephale Typus vertreten ist, so besonders bei den Battak und Dayak, und mit diesem ist auch welliges Haar, breite Nase und horizontale Augenstellung in grösserer Konstanz verbunden als mit dem brachykephalen Typus. Je weiter nach Osten, desto mehr überwiegt die Dolichokephalie mit den anderen hier bezeichneten Merkmalen." P. W. Schmidt was of opinion that if the answer to this question could be in the affirmative, "dann muss sowohl Name wie Begriff der„ malaiischen Rasse " gründlich reformiert oder eigentlich vollständig mit derselben aufgeräumt werden. An Stelle derselben hätte dann Name und Begriff jener Rasse zutreten deren Bestehen in Vorder- und Hinterindien jetzt schon nachgewiesen ist, und mehr noch als man das jetzt schon tut, müsste dann betont werden, dass die Abweichungen der Malaien, Javanesen, Philippiner u.s.w. von dieser Rasse erst sekundärer Natur und aus der Beeinflussung durch mongolische Völker ent-

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tanden seien,"[27] A Weddid element has today been recognised in Insular India and its mixture with the Malayic population does not seem improbable.[28] Is it possible that the similarties in blood-group percentages between the Malayic peoples and the Mundari-speakers pointed out by Macfarlane and Sarkar are due to this element and that the infusion of the Mongolians has had no effect on the blood-group distributions? We have no reason for supposing so, but we shall never know till we have data from the tribal groups of Sumatra!

The discussion of the serological affinities of the Mundari-speakers and the Malayic peoples (Austronesian) forced on us by the inclusion of the latter in their Table 4 has therefore led us into a blind alley. There is no clear ethnic unity traceable between the Korku, Munda and Santal and the Sumatranese, Javanese, Philippinos etc. Unless this ethnic unity is proved to subsist between the Korkus, Mundas and Santals and the Buginos and Macassarese etc., the similarities in blood-group percentages can not have any significance and will be found traceable to different causes having the same effect. One might as well point to similarities in blood-group distribution between some of the Finno-Ugrian peoples and the Khasis, Mundas and Korkus in support of Wm. v. Hevesy's theory of Finno-Ugrian affinities of the Mundari speakers![29]

The Austro-Asiatics.

As a matter of fact, "Mon-Khmer" as a linguistic group has a far more limited significance than one would presume from the groups included in Macfarlane and Sarkar's Table 4, which corresponds to our Table II It comprises "the two ancient literary languages, Mon and Khmer, Bahnar, Stieng, dialects of the tribes called Moï: Samreh, Kha-so, Kha Tampuen, Schong, Huei, Suc, Sue, Hin, Nahang, Mi, Khmus, Lemet, all in Indo-China; and in the peninsula of Malaya, Bersisi and Jakun." There are besides a mixed group of languages, Čam, Radé, Jaraï, Sedang, which are Mon-Khmer judged by their construction and vocabulary but have borrowed a large number of words. With the closely related Munda or Kol languages, the Khasi, Nikobarese, Wa, Palong and Riang and also the Semang and the Senoi the Mon-Khmer and the mixed languages have been grouped by Schmidt in a common family which he termed Austro-Asiatic.[30] There are some languages on the Himalayan border, which though

27. Schmidt, P. W.—Die Mon-Khmer Völker, Braunschweig, 1906, pp. 60-62.

28. Kleiweg De Zwaan, J. P.—The Vedda element in the population of the East Ind. Archipelago. C. R. Congr. Int. Anth. et Eth. London, 1934, pp. 201-2.

29. Hevesy, Wm. v. Finnisch-Ugrisches aus Indien. Es gibt keine austrische Sprachfamilie—das vorarische Indien teilweise finnisch-ugrisch, Wien, 1932: *in* Régamey, C.—Bibl. Anal. des Travaux Relatifs aux Eléments Anaryens dans la Civilisation et les Langues de l' Inde—Bull. E. F. E. O. XXXIV, 1935, no. 195.

30. Schmidt, P. W.—*Op. cit.*
Bagchi, Prabodh Chandra: *in* Introduction to Pre-Aryan and Pre-Dravi-

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of Tibeto-Burman origin show the last traces of the Mundari, viz., the Kanawari on the southern frontier of Kashmir. The Kanāṣi, Mancatī, Ranglōï, Bunān, Raṅkas, Dārmiyā, Caudāṅsi, Byānsī and Dhīmal of Nepal should also be mentioned in this connection. The domain of the Munda, therefore, is presumed to have been much wider in ancient times and "has been [since] reduced and cut into pieces by Aryan and Dravidian on the west and Tibeto-Burman on the east."

What makes the Austro-Asiatic group of languages a matter of absorbing interest to students of Indian Anthropology, particularly of the aboriginal problem, is that P. W. Schmidt believed to have been able to trace a number of physical characteristics commonly shared by the Austro-Asiatic speakers. Accordingly, he hoped that with the increase of our knowledge these characteristics would turn out to comprise an anthropological unity. He writes: "Wir haben also genügende Aussicht, dass zu den grossen sprachlichen Einheit, deren Bestehen in Hinter- und Vorderindien nun als gesichert betrachtet werden muss, in absehbarer Zeit auch eine anthropologische Einheit sich zugesellen wird, deren Geltungsbereich im grossen und ganzen mit demjenigen der ersteren zusammenfallen, an vielen Stellen aber wohl noch über denselben hinausgreifen wird."[31] As the Annamites, included by Macfarlane and Sarkar in their table (no. 4) of blood-group distribution of the Mon-Khmer- speakers (Table II),[32] are considered by Schmidt to share the same characteristics, the question of an ethnic unity subsisting between the Austro-Asiatic-speakers, which would explain the resemblances in blood-group percentages, has to be considered.

Schmidt writes: "Die gleichen physischen Merkmale aber, die ich bei den Senoi und Sakei und den Mon-Khmer-Völkern nachgewiesen, durch welche diese sich scharf so wohl von ihren malaiischen als ihren mongolischen Nachbarn absondern, kann ich nun aber auch teilweise noch vermehrt und genauer bestimmt bei allen den Völkern dartun, deren sprachliche Zusammengehörigkeit ich nachgewiesen habe. Es sind: 1. dolichokephale bis höchstens mesokephale Schädelbidung, 2. horizontal–, nicht schiefliegende Augen; runde, weite nicht enggeschlitzte Augenöffnungen, 3. breite Nasenflügel, 4. dunklere Hautfarbe, 5. mehr oder weniger welliges Haar, 6. kleinere bis mittlere Statur. Die Gesamtheit dieser Merkmale ist jedenfalls in negativer Hinsicht zwingend, diese Völker sowohl von der mongolischen als den arischen Rassen zu trennen, ob auch von der Dravida-Rasse kommt hier nicht in betracht."

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dian in India (Collected papers by Lévi, S., Przyluski, J. and Bloch, J.) Calcutta, 1929, pp. i-xviii.

31. Schmidt, P. W.—*Op. cit.* pp. 26-34; Grierson, G. A.—Review *in J. R. A. S.* 1907, pp. 187-192.

32. The series comprised 500 soldiers of the Entente army in Macedonia, mostly Tonkinese.

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Schmidt tried to substantiate the above by a list of anthropological measurements, which included length-breadth index (of the head or skull), nasal index, orbital index (skull) and stature (living). The populations comprised Senoi (Martin), Rade, Penong, Kui, Roong, Nong and Khmer (Maurel); Khmer (13 skulls, Maurel and Zaborowski); Moïs (7 skulls, Néis Zaborowski), Bahnar (4 skulls, Zaborowski) and Nikobarese (4 skulls, Flower & Virchow); also 17 living samples of various sizes from the Chota Nagpur plateau in Anterior India, which included the Asur, Bhuiya, Binjhia, Birhor, Bhumij, Chero, Chik, Dom, Kharia, Kharwár, Korwá, Kurmi, Lohar, *Munda, Oraon, Santals of W. Bengal* and Tanti.

To this was added a short description (Thorel) of the "dolichokephale Schädelbildung, dunkle Farbe, horizontale Augenlage, welliges Haar der Annamiten, Cambodjaner, Stieng, Bahnar, Sedang;" also short descriptions of the Palong-, Wa-, Mon (Pegu) and Khasi tribes from English sources. The brachycephaly of some of the Khmer skulls was regarded as the only significant instance against the identity of connection of the Austro-Asiatic-speakers.

Schmidt's hypothesis has been since contested by v. Heine-Geldern. The following is an extract from Régamey's abstract of his work: "Le P. W. Schmidt se fondait sur des données insuffisantes et trop inexactes pour pouvoir prouver la parenté anthropologique des peuples austroasiatiques. D'autre part, comme il n'a pas démontré que ces peuples diffèrent, au point de vue anthropologique, des Tibeto- birmans, des Siamois, etc., il ne peut pas établir l'existence d'une race austroasiatique distincte. M. H. G. signale que les Mon, les Khasi et les Palaung appartiennent plutôt à la race mongole et qu'il est impossible de différencier d'une façon nette les autres peuples austroasiatiques de leurs voisins. Par conséquent, on doit abandonner l'idée qu'une race spécial correspond à la famille linguistique austroasiatique. On pourrait plutôt parler d'un groupe anthropologique 'indo-australien', comprenant les Senoi, les Kubu, les Toala, les Wedda et plusieurs tribus montagnardes de l'Inde."[33] It is also possible to recognise a Negrito element, as some do, in the Semang etc.[34]

There is a divergence of opinion as to which of these races, Mongolian or Indo-australian, is responsible for the introduction of Austro-Asiatic into India. Thus, Chanda following Schmidt's description of the Austro-Asiatic physical characteristics (Grierson, 1907) connected them with the Pre-Dravidian Niṣādas. These he assumed to have been originally Austro-Asiatic-speakers.[35] (The position is actually covered by Schmidt's list of populations having Austro-Asiatic

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33. Heine-Geldern, R. v.—Gibt es eine austroasiatische Rasse? *Arch. f. Anth. xviii (xlxi)*, 1920, pp. 79-99. Régamey, No. 53. *Cf.* Fischer, E. (1923) *loc. cit.*

34. Chatterji, Suniti Kumar.—Indo-Aryan and Hindi: Ahmedabad, 1942, pp. 32-34.

35. Chanda, Ramaprasad.—Indo-Aryan Races, Rajshahi, 1916.

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physical characters.) M. Sylvain Lévi arrived at the same conclusion from his study of a number of ancient Indian ethnics, particularly a description of the Pulindas in the Bṛhatkathā-ślokasaṁgraha, VIII. 31.[36] On the other hand v. Eickstedt[37] and v. Heine-Geldern[38] appear to associate the Mongolians with the Austro-Asiatic speech. According to the latter, "Cette race mongoloïde a dû former la plus ancienne couche comme en Asie méridionale; les invasions successives ont déchiré l'unité primitive de cette ancienne couche ethnique et détruit sa pureté anthropologique. Le type le plus pur serait représenté par les Khasi, les Riang, les Palaung, les Mon et, peut-être, les Khmer et les Annamites. Il est difficile d'établir jusqu'à quel point les Muṇḍa ont conservé la pureté de race, puisqu' ils ont dû subir de nombreuses influences." (1920).

The autochthonous black of the Deccan are, according to M. Przyluski, the distant ancestors of the present Dravidians, and instead of 'Pre-Dravidian' should be called 'Proto-Dravidian', a term that does not prejudge their racial affinities. "To the aborigines with dark skin, the primitive ancestors of the Dravidians, were superposed the conquering Kols or Mundas, having a brighter colour. The Mundas are not the Pre-Dravidians, they subdued the Proto-Dravidians." The reference to the Pulindas in the Bṛhatakathā-ślokasaṁgraha is interpreted by him as showing the relations between the Proto-Dravidians and the Kols and Mundas. "It is not necessary to consider the Kols and Proto-Dravidians as rival races always occupying distinct territories. In some cases, perhaps in the majority of cases, these two ethnic elements lived together in the same territory; an aristocracy with a bright complexion [probably yellowish] and a body of plebeians with a dark complexion."[39]

It is certainly true that the anthropological literature contains not infrequent references to Mongolian features noticed among the tribes of the Chota Nagpur region. Thus Dalton speaks of oblique eyes and Mongolian physio-

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36. Lévi, S.—Préaryen et prédravidien dans l'Inde. Jour. Asiat. cciii. 1923, pp. 1-57; Pre-Aryan and Pre-Dravidian in India (Engl.), Calcutta, 1929, pp. 63-126.

37. Eickstedt, E. v.—Der Zentral-Dekkan und die Rassengliederung Indiens, Anth. Anz. VIII, cited in Heine-Geldern (1928).

38. Heine-Geldern, R. v.—Ein Beitrag zur Chronologie des Neolithikums in Südostasien. *Festschrift, Publ. d'hommage offerte au P. W. Schmidt,* Wien, 1928, pp. 809-843 (Régamey, no. 130); Orissa und die Mundavölker im "Periplus des Erythräischen Meeres." Beitr. zur historischen Geographie, Kulturgeographie, Ethnographie und Kartographie, vornehmlich des Orients. Leipzig und Wien, 1929, pp. 157-171. Régamey, no. 131.

39. Przyluski, J.—Pre-Dravidian or Proto-Dravidian? Ind. Hist. Quart. VI. 1930, pp. 145-49.

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gnomy among the Juangs,[40] Hos or Larka Kols,[41] Cheros[42] and Parheyas[43] of Palamau. He describes the features of the Mundas as follows: "When the face of the Moondah varies from the Aryan or Caucasian type, it appears to me to merge into the Mongolian than the Negro. High cheekbones, small openings for the eyes, having in some instances a tendency to the peculiar oblique set of the Mongolian and flattish faces without much beard or whisker. They are of average stature, and in colour vary from brown to towny [? tawny] yellow."[44] According to v. Heine-Geldern, "E. Eickstedt distingue chez les Munḍa les couches anthropologiques suivantes: 1° la plus ancienne, composée des éléments mélanides et weddoïdes, 2° la couche dravidienne (indides méditerranéens), et 3° *la couche mongolide. Seule cette dernière couche représente l'élément austroasiatique.*"[45] Basu, who made a study of 250 Mundas writes thus of their eyes: "The direction of the eye-slits . . . is either horizontal or only slightly oblique. And the obliquity is due to the fact that the outer canthi are usually on a higher level than the inner ones. The true epicanthic fold is present in two individuals only, and in seven cases there is a slight hint of it." The same investigator describes 81 Bhuiyas of Mayurbhanj as follows: "The eyeslits are either straight or oblique [slightly oblique = 40] and the epicanthic folds are present in a few individuals [5 cases, with hint of ep. fold in 1 case]. These with the prominent zygomatic bones, slight yellowish tinge in the complexion suggest a submerged Mongoloid strain as suggested by Col. Dalton but denied by others."[46] Among 127 Kols of Jubbulpur, one of us (Chatterji) found 22.8% eyes with outer canthi raised, 51.18% slightly raised and 25.98% straight eyes; while epicanthic fold was present on two individuals, and four persons showed only traces thereof. Among 100 Santals studied at Dumka, Santal Parganas, the same investigator found 6% eyes with outer canthi raised, 51% slightly raised and 43% straight eyes; while epicanthic fold was slightly indicated on one individual only.

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40. Dalton, E. T. *op. cit.* p. 157.

41. *Ibid,* p. 190.

42. *Ibid,* p. 126.

43. *Ibid,* p. 131.

44. Dalton, E. T.—Trans. Eth. Soc., London. *New Ser.* Vol. 6, p. 15, *cf.* 17, *cited by* Schmidt, P. W., *op. cit.*

45. Eickstedt also found a Mongoloid type among the Weddas of Ceylon, which is explained by Malay mixture. As Osman Hill points out, "Malays are numerous in parts of Ceylon but there is no proof of their mixing with Veddas at any time." Osman Hill, W. C.—The Physical Anth. of the Existing Veddahs of Ceylon. *Ceylon J. Sci.* (G) III, 2, 1941, pp. 27-144. *Specially* p. 38 and reference.

46. Basu, (1932-33), Idem.—The Anthropometry of the Bhuiyas of Mayaur-

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On going through the available material– v. Eickstedt's data on the Mundas are not available in the present circumstances–we do not feel satisfied that in the recorded cases the oblique eyeslits and the epicanthic folds have been so well observed, both in morphological details and from the genetical standpoint, that we could unhesitatingly attribute these features found in the Anterior Indian aborigines to the yellow race. A regards the oblique eyes, consideration of the photographic reproductions of the aborigines that we have examined makes us recall the remarks of R. Martin *a propos* of the Senois etc.: "Ueberblickt man die auf den Tafeln abgebildeten Individuen, so überzeugt man sich dass in der Mehrzahl der Fälle die Lidspalte ein wenig schräg gerichtet ist, d. h., dass der äussere Augenwinkel etwas höher steht als der innere. Diese Bildung ist nicht wie beim typischen Mongolenauge auf eine Täuschung zurückzuführen, die dadurch erzeugt wird, dass das obere Augenlid den innersten Abschnitt des unteren überwächst und verdeckt, denn bei den Senoi liegt mit wenigen Ausnahmen die Caruncula lacrymalis frei zutage, sondern die Schrägrichtung ist vielmehr durch die Schweifung des unteren Augenlides bedingt, das in seinem lateralen Abschnitt stark nach oben aufsteigt, während die mediale Partie flacher verläuft. Dadurch kommt der äussere Augenwinkel tatsächlich etwas höher zu liegen als der innere. Das obere Augenlid dagegen ist meist gleichmässig gerundet oder geschweift. Ganz gerade Lidspalten habe ich nur bei 20 Individuen beobachtet.

Die Lidspalte selbst ist meist lang, eng oder mässig weit, doch kommen auch weiter geöffenete vor, in welchem Falle das Auge dann gross und offen blickt. . . . . Immerhin notierte ich bei 68 individuen "Lidspalte schräg und eng" was wir also als die typische Bildung betrachten müssen. Das eigentliche Mongolenauge, wie es Bälz beschrieben hat fehlt bei den Inlandstämmen; sie besitzen weder jene Fettansammlung in oberen Augenlid, wodurch die Einsenkung unter den oberen Orbitalrand, d. h. zwischen Lid und Stirnrand, wegfällt, noch jene Umschlagsfalte des oberen Lides, die an der Seite der Nase mit der Gesichtshaut verwächst."[47] A similar observation is recorded by Cipriani on the short faced type of Ieravàs of Kurg: "uno secondo tipo, meno dolicocephalo, ha faccia breve, tendenza al prognatismo totale, naso molto largo, angolo interno dell'occhio situato inferiormente all'angolo esterno, capello più fortemente ondulato del precedente."[48]

The recorded cases of epicanthic fold, in so far as they have been correctly observed, lead to a difficult problem. The Sarasins found no instances of epican-

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bhanj. Jour. Pr. As. Soc. Beng. New Ser. XXV, 1929, pp. 157-163. Of 250 Oraons studied by Basu (1933-34), 34.8% showed slightly oblique eyes; there was one case of true epicanthic fold.

47. Martin, R.–Inlandstämme der malajischen Halbinsel, Jena, 1905, pp. 401-2.

48. Cipriani, L.–*op. cit.* (1935).

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thus in adult Weddas and did not observe any on children; but they had examined too few children of very early age.[49] Among the inland tribes of Malay Peninsula, however, Martin found the beginnings and traces of an epicanthus on 23 individuals of all ages and sexes, often indeed on one side. He says: "In allen diesen Fällen nämlich bildet das obere Augenlid meist vom äusseren Augenwinkel an eine kleine Falte, die den Lidrand nur selten zu erreichen und verdecken vermag, die aber gegen den inneren Augenwinkel zu steil absteigt, so dass es nicht zu der für uns Europäer characteristischen Auswölbung oder freiliegenden Bucht am inneren Augenwinkel kommt." In the case of one Mantra, the inner fold on the right eye could be followed down over the lower eyelid, but Martin regarded him as mixed. He concluded: *"Eine Neigung zur Epicanthusbildung lässt sich also weder für die Senoi noch für die Semang . . . leugnen, wenn sie auch nicht als ein regelmässiges Vorkommen aufzufassen ist.* Die Bucht am inneren Augenwinkel pflegt daher auch meist kleiner zu sein als beim Europäer; oberes und unteres Augenlid stossen gewöhnlich in einem spitzen Winkel zusammen."[50]

Even if the few instances of true epicanthus recorded among the Anterior Indian aborigines have been correctly observed, that would not without further evidence prove their Mongolian origin, nor testify to the existence of a submerged Mongolian strain in the primitive population of Anterior India. The genuine Mongolian fold, more or less definitely developed among the truly Mongolian peoples (South Chinese 100%; Japanese ♂ 76%, ♀ 67%), has been found to be dominant over the foldless European type by a number of investigators. As E. Fischer showed in his investigation of the Rehobother Bastards, the Hottentots possess anatomically the same type of fold as the Mongolians; but it behaves recessively in crossings with Europeans and is genetically distinct. Similarly the fold found among the Eskimos is recessive to the foldless European type and is of genetically independent origin. Indeed it speaks against the relationship of the Eskimos with the Mongolians. The Chile Indians have been found to possess a distinct type of fold. Small folds are formed on both the outer and inner angles of Negro eyes, all of which show *"die Neigung des Augenlides selbständig bei verschiedenen Rassen zu mutieren!"*[51] The genetical nature of the eyefold of the Anterior Indian aborigines must be first of all

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49. Sarasin, P. and F.—Die Weddas von Ceylon und die sie umgebenden Völkerschaften, Wiesbaden 1893, p. 137.

50. Martin, R.—*loc. cit.* Cf. Robinson, H. C. and Kloss, C. B.—Additional Notes on the Semang Paya of Ijok, Selama, Perak. *Jour. Fed. Mal. St. Museums,* V, 1915, pp. 187-191; Kloss, C. B.—Measurements of some Sakai of Sungkai and Slim, South Perak, with notes on the same. *Jour. Fed. Mal. St. Museums,* VI, 1915, pp. 71-84.

51. Fischer, E.—*in* Menschliche Erblehre, München, 1936, pp. 199-202.

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proved by investigation to be identical with that of the Mongolian eyefold, and the presence of other Mongolian characteristics in the same populations demonstrated, before it could be recognised as truly of Mongolian origin.

The indications of skin colour are equally, if not more, complicated. We know of a hereditary yellow component in the skin of the Negro, presumably recessive by nature, which appears in the back-crossings of mulattos with Europeans, above all in the thumbnails and the naso-labial fold. It is wanting in the Australians.[52] The tawny yellow skin-colour noticed by Dalton among the Mundas, and the yellowish tinge observed by Basu among the Bhuiyas, if proved to be yellow at all, may possibly indicate the presence of some such recessive component among the Anterior Indian aborigines. With greater likelihood however it should be recognised as one of the various nuances of skin colour found in mixed populations originating from dark × light crossings. In any case, should the nuance turn out definitely to be yellow, it is to be taken to signify a divergence from the Australians.

A flatfaced type was noticed by one of us (Chatterji) among the Kols of Jubbulpur. Nevertheless it was not noticeably Mongoloid. In any case, the population in question is so mixed that without further investigation we are not satisfied that it could not originate from intensive crossings between the very different racial elements which build up the Kol population in this locality.[53]

In short, if the original Austro-Asiatic-speakers had been of Mongolian origin, there is no unmistakable evidence of their existence among the Anterior Indian tribes. We may hope to know more about the Mongolian strain said to be submerged in these populations when v. Eickstedt's data on the Mundas is published. Meanwhile, the so-called oblique eyeslits, epicanthic folds etc., found among them can not be admitted as evidence of such a strain unless more light is thrown on their genetical character by further research.

Further, if one takes a little trouble to find out, the Hinter Indian landmass, Indonesia and the islands of the south-east have their own racial history with problems of their own. We habe Cymotrichous or smooth-haired groups, woolly-

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52. Fischer, E.—*op. cit.* (1936), pp. 116-117.

53. *Cf.* Majumdar, D. N.—*op. cit.* "Thus it is probable that the Mongolian element had little to do with the racial make-up of the Hos, although here and there certain Mongoloid traits have been discovered by Col. Dalton. . . . The general physical appearance of the tribes of Chota-Nagpur do not suggest any Mongolian infusion either." As quite apart from 'Stray cases' of recent origin, Majumdar is thinking in terms of "a general miscegenation with Mongoloid stock," his statement does not exclude the possibility of the existence and ultimate submergence of a brighter-complexioned (yellowish) aristocracy with the dark-skinned plebeians (Przyluski). We cannot accept this position without further evidence.

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haired groups,—tribes living in conditions of primitive economy,—populations of Mongoloid origin which may have absorbed the former in different degrees. (Hindus and Arabs there had been in the past). Small groups are also not wanting who betray the characteristics of the above elements in mixed form. On the riverbanks of the Hinter Indian landmass and on the islands which are close enough to one another for purposes of communication, there have been civilizations and states—here with a prevailingly inland outlook, there maritime—never inactive, scarcely having time to sink back into inanity. When the Hindu blood thins out, there are the Mongolians from the north and north-west and pouring down the waterways; the populations mingle—they diverge from the Hindu's placid contemplation of the eternal verities and exult in a *joie de vivre,* a spiritual vigour, which is reflected in their art; and withal a busy life on the seas. This zone of intensive contact of races, populations and cultures does not know complete Nirvāṇa even today. Slowly, inexorably it is being flooded by the peaceable intrusion of the Chinese. Not always in the past, however, have the Mongolians intruded in this area in so peaceable a manner as the Chinese Cooly and trader of today. One recalls the Tai or Thai immigrations into Burma, into the present Shan states, Northern Siam and Tongking where they founded several important kingdoms.

What then is the racial and ethnological position of the Annamites of today? Can they be presumed to have remained unaffected by the Tai immigrations? According to Major E. Seidenfaden who has firsthand knowledge of conditions in the Extreme Orient: "The Annamites were formerly placed in the Mon-Khmer group, as their language contains a certain number of words belonging to that language group. Recent researches seem, however, to show that the Annamites belong to the Tai group, and that mixture with the Muong, a Mon-Khmer people living in lower Tonking, as well as with the Chams and Cambodians and, last but not least, Chinese during 600 years, has produced the present Annamite type and language....."[54]

The resemblances between the blood-group distributions of the Annamites and the Mundari-speakers (almost equal doses of A and B) therefore have as much significance as similar resemblances between the Annamites and the Negro peoples of Africa, e.g., the Senegalese.

The aboriginal problem in Indian Anthropology.

There is one aspect of the Indian aboriginal problem which in our opinion has not been sufficiently considered in the attempts at systematic classification

54. Seidenfaden, E.—Ethnology: *in* Siam, Nature and History, Bangkok, 1930, ch. VI; Anthropological and ethnological research work in Siam. C. R. Congr. Int. Anth. et Eth. London, 1934. pp. 135-36.

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of the aboriginal tribes. We refer to their interrelationships in respect of individual characters of their physiognomy, skull-form etc. The one significant exception to this is comprised by Guha's anthropometric survey of 1931, which included the Chenchus, Bhils, Kadars and Nattumalyans. A large number of characters of these groups (and many others) were subjected to statistical reduction by Guha, Morant and Pearson's formulae of C. R. L. being applied. The α values, which express the resemblances and divergences of the means of the individual characters of the groups under comparison (the C. R. L. is made up of many such) have been published by Guha (1935) and justify the assumption that this method of approach promises to be a fruitful one.

In view of the above consideration the present writers made a metric study of a number of cranial characters of several well known aboriginal tribes. The crania were all of adult individuals and included 6 Kols (Keonjhar etc.), 7 Mundas (Ranchi and Chota Nagpur), 4 Bhuiyas (Keonjhar and Mayurbhanj), 3 Oraons (Ranchi and Chota Nagpur) from the collection of the Anthropological Laboratory of the Zoological survey of India; also 6 Pollachis, 3 Paniyans, 4 Pulayans and 3 Kadars from South India, now in the Musée L'Homme, Paris. The skulls from the Anthropological Laboratory, Z. S. I. had already been studied by Turner[55] and partly by Basu.[56] From these we have only retained Turner's data for cranial capacity. We have also utilized Koller's data on three Santal crania (adults only) collected by Baron v. Brenner about the beginning of the present century and now in the Nat. Hist. Museum, Wien, supplementing the same by our own data on a Santal skull;[57] Müller's data on four Rajput skulls from Narsinghpur and Jāblpur (Central India), collected by the brothers Schlagintweit (1854-58), now in the Senckenberg Museum, Frankfurt-on-Main;[58] Martin and Virchow's data on five Senoi skulls (Malay Peninsula),[59] Müller's data on six skulls from Normanby & Fergusson (d'Entrecasteaux Archipel.) now in Mannheim, and the Wedda data of the Sarasins.[60]

As the relationship of the Anterior Indian aborigines among themselves happen to be part of a bigger problem defined by Müller, viz., "Gehören die dolichokephalen Kleinschädel Indiens, Ceylons und Indo-Melanesiens einer einheitlichen Weddiden Rasse an?"—we used for comparison the same basis

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55. Turner, Sir. Wm.—*op. cit.*

56. Basu, P. C.—*op. cit.* (1932-33 & 1933-34).

57. Koller, R.—Santalschädel, *Anthrop. Anz.* 10, 1933, pp. 235-238. The other Santal skull was from the museum of the Carmichael Medical College, Calcutta

58. Müller, H. W.—Die Kleinschädelformen Südasiens, *Zeitschr. f. Rassenk.* II. 1935, pp. 53-90; 263-296.

59. Martin, R.—*op. cit.*

60. Müller, H. W.—*op. cit.*

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groups, so that the results could be directly comparable. These are Münter's data on African Negro skulls[61] and Prof. Fritz Sarasin's recently completed data on ten Wedda skulls;[62] the characters chosen and the number of characters were within the limits of our material necessarily the same. The comparison was instituted by Mollison's method of "relativen Abweichung"; the arithmetic means of the individual characters of the above groups comprised the basis or zero line; the plus or minus deviations of the means of the individual characters of the groups under comparison from the basis were expressed in terms of the maximum or minimum variations of the identical characters of the basis groups considered as 100. The figures of relative "Abweichung" or deviations are incorporated in Tables III and IV, which also show the figures of absolute deviations. The former are best studied by constructing "Abweichungs-diagramms" on millimeter paper.

The limitations of our data are apparent and need not be discussed in detail. It is however necessary to point out that craniological characters alone can not form the basis of raciological classification—the limb-proportions, somatological and integumental characters etc., have also to be considered for that purpose. Nevertheless, while we claim no finality for many of our results, the latter may be considered to yield us some "Anhaltspünkte" which may be helpful in our approach to the aboriginal problem.

It may be remarked here that samples of small size have been previously considered with very good results, e. g., the work of Sewell and Guha[63] on the human remains of Mohenjodaro, and of Friederichs and Müller[64] which is based upon the former. To be mentioned in this connexion is also Müller's work on the "Kleinschädel-formen Südasiens", of which our work may be regarded as a supplement. In view of the small sizes of our samples we have not attached too much significance to the degree of divergence from the basis, except when several groups have shown the same tendency to exceed the range of variation of the basis group in the same manner. In interpreting the figures of "relativen Abweichung" we have mainly considered whether the groups under comparison deviated from the basis group in the same sense or not.

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61. Münter, H.—Stellung d. Kopten zu den Altägyptern, *Zeitschr. Anat.*, 74, 1924, *cited in* Müller, H. W.—*loc. cit.*

62. Müller, H. W.—*op. cit.* The averages of the other groups were not always made up of the full number of skulls for each character.

63. Sewell, R. B. S. and Guha.—"Human Remains" *in* Marshall, Sir J. Mohenjodaro and the Indus Civilization, London, 1931.

64. Friederichs, H. F., and Müller, H. W.—Die Rassenelemente im Indus-Tal während des 4. und 3. vorchristlichen Jahrtausends und ihre Verbreitung, *Anthropos*, XXVIII, 1933, pp. 383-406.

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Relative deviations of the Wedda etc. from the Negro basis. (Table III)

We found it necessary to consider the deviations of the Wedda (22) and the Anterior Indian aborigines from the Negro basis in order to find out whether the latter deviated from an unrelated group, broadly speaking in the same sense as the Weddas.

A consideration of the deviations of the Wedda, Fergusson and Kol skulls shows the striking similarities of the three groups in respect of the majority of characters. All of them exceed the range of variation of the basis group in Trs. Par. occ. Ind. and Int. Orb. Ind. Among the divergences we note: 1) in respect of Sag. Par. Ind., the Kol with + 13 contrasting with Wedda and Fergusson,—16, though none deviate far from the basis; 2) Orb. Ind., the Kol with —21 contrasted with Wedda, + 20, while the Fergusson are close to the basis; 3) Trs. Cr. fac. Ind., the Fergusson with —23, diverging from the other two groups; 4) Long. Cr. fac. Ind., Wedda and Kol diverging in the same sense from the Fergusson; 5) Jugo-fr. Ind., the Kol diverging from the Fergusson, while Wedda are close to the basis. We also note that in Upp. fac. Ind., the Wedda and the Fergusson approximate to the basis, while the Kol show a well marked deviation in the minus direction.

It will be seen on Table III that Sag. Par. Ind., the Munda, Santal, Bhuiya, Oraon, Paniyan and Pollachi deviate in the same sense as the Kol, while the Kadar, Poulayan and Senoi show the same tendency as the Wedda and the Fergusson skulls. In respect of Orb. Ind., the Paniyan and Senoi are hypsiconch, while the Santal and Kadar show relatively high orbits and the rest show the same tendency as the Kol towards a more marked mesoconch Index. For Trs. Cr. fac. Ind., the Bhuiya, Pollachi, Poulayan and Senoi agree with the Fergusson skulls, while the rest agree with Wedda and Kol. In Long. Cr. fac. Ind., only the Bhuiya and Poulayan agree with the Fergusson skulls. In Jugo-fr. Ind., Kol, Munda, Oraon and Paniyan all show lower values than the basis group, the rest agreeing with Wedda (among whom this tendency is only slightly indicated) and Fergusson. In common with the Wedda, the Paniyan, Santal, Senoi and Fergusson have Mesēn or medium high faces, while all the other tribes agree with Kols in having Euryēn or low faces. The divergences of the Kols from the Wedda and Fergusson do not therefore signify individual or isolated tendencies, but are paralleled by similar tendencies in other groups. When we consider the wide distances which separate the Kol, Wedda and Fergusson, the resemblances between the three appear remarkable, while the above mentioned divergences may prove partly at least to be of the nature of normal variations within members of the same group.

If we consider the deviations of the Wedda with those of the Paniyan and the Poulayan, we find in them a convergence or a tendency to deviate from the basis in th esame sense in respect of Length br. Ind., Trs. Cr. fac. Ind., and capacity. There are a number of characters in respect of which the Paniyan and

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the Poulayan behave to each other and to the Wedda in such a manner that where one of them agrees or tends to agree with the Wedda, the other diverges away. Of such characters we note in the case of the Paniyan, Length ht. Ind., Trs. Fr. par. Ind., Sag. Fr. par. Ind., Sag. Fr. occ. Ind., Sag. Par. occ· Ind., Sag. Par. Ind. Likewise the Poulayan diverge from the Wedda in Sag. Fr. Ind., Sag. Occ. Ind., Nas. Ind. and Long. Cr. fac. Ind. In Upp. fac. Ind, the Poulayan show a lower face than the Paniyan and the Wedda, in common with many another Anterior Indian group. Similarly, the Poulayan keep close to the lower range of medium high orbits, in common with a number of other tribes and are contrasted with the Paniyans who have high orbits and with the Wedda who approach the upper limit of medium orbits. We thus see that although the Paniyan and the Poulayan diverge from each other, their affinity with the Wedda in respect of a number of characters is undeniable. It is noted that in Breadth ht. Ind., though all the three groups exceed the basis group in their averages, the Paniyan leave the other two far behind and exceed the maximum variation of the basis group; the Poulayan deviating in as pronounced a manner in Sag. Fr. par. Ind. In Jugo-fr. Ind., the Wedda show a negligible higher value than the basis, while Paniyan and Poulayan deviate oppositely.

The divergent tendencies of the Paniyan mentioned above are traceable in other groups; viz., Length ht. Ind. in Bhuiya, Pollachi and Senoi; Trs. Fr. par. Ind. in Munda and Oraon; Sag. Fr. par. Ind., in Kadar, Munda and Santal; Sag. Fr. occ. Ind. in Oraon; Sag. Par. occ. Ind. in Bhuiya and Oraon; Sag. Par. Ind., in Kol, Munda, Santal, Bhuiya, Oraon and Pollachi; Jugo-fr. Ind. in Kol. Munda and Oraon.

Of the divergent tendencies of the Paniyan noted above, the Kadar agree in respect of one, viz., Sag. Fr. par. Ind.; the Munda in respect of four, viz., Trs. Fr. par. Ind., Sag. Fr. par. Ind., Sag. Par. Ind. and Jugo-fr. Ind.; the Oraon in respect of five, viz., Trs. Fr. par. Ind., Sag. Fr. occ. Ind., Sag. Par. occ. Ind., Sag, Par. Ind. and Jugo-fr. Ind.; the Kol in respect of two, viz., Sag. Ind. and Jugo-fr. Ind.; the Santal in respect of two, viz., Sag. Fr. par. Ind. and Sag. Par. Ind., Bhuiya in respect of three, viz., Length ht. Ind., Sag. Par. occ. Ind., Sag. Par. Ind.; the Pollachi in respect of two, viz., Length ht. Ind. and Sag. Par. Ind.; Senoi in respect of one, viz., Length ht. Ind.; Poulayan in respect of none. If we exclude the Poulayan, the above divergent tendencies which are scattered throughout the other groups may be said to be found concentrated—as it were, or rather in association in the Paniyan. The other southern groups do not conform to the Paniyan in this respect.

The divergences of the Poulayan are also of interest. Their tendency to exceed the mean of the basis group in Sag. Fr. Ind., is isolated; the same tendency in respect of Sag. Occ. Ind. is shared by the Kadar and Senoi only; also in respect of Nas. Ind. by the Senoi, the tendency being slightly indicated in the Munda. In Long. Cr. fac. Ind. also the Poulayan exceed the basis group

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slightly in common with the Fergusson and Bhuiya, while the others deviate in in a pronounced manner in the minus direction commonly with the Wedda; only among the Pollachi is this tendency not so strongly marked. In diverging from the Paniyan in Jugo-fr. Ind. the Poulayan agree notably with the Kadar, Pollachi, Senoi, Fergusson and Santal; the tendency being slightly indicated in the Bhuiya.

The affinities between the southern and northern groups may be studied with profit by comparing the deviations of the Pollachi with those of the Bhuiya. In Length br. Ind. the Pollachi are close to the basis, while the Bhuiya correspond with all the other groups with longish heads. There is a significant tendency in the two groups to diverge in Sag. Par. occ. Ind., wherein the Bhuiya conform with the Paniyan and the Oraon in recording a slightly higher average than the basis group, the other tribes being ranged oppositely. In Breadth ht. Ind. and Sag. Fr. par. Ind. both groups deviate in the same sense from the basis, but the Bhuiya are in excess of its maximum and minimum variations of the two characters respectively. The same pronounced tendency is shown by the Paniyan and the Munda in Breadth ht. Ind., and the Poulayan in Sag. Fr. par. Ind. Otherwise the Bhuiya and the Pollachi exhibt very similar tendencies.

A comparison between the deviations of the Paniyan, Oraon and Santal in respect of sixteen characters showed a convergence or tendency to converge in Length br. Ind., Breadth ht. Ind., Sag. Fr. Ind., Sag. Par. Ind., Sag. Occ. Ind. and Nas. Ind., the minimum variation of the basis group for Length br. Ind. being exceeded by all the three groups, that for Sag. Occ. Ind. being exceeded by the Oraon. In four characters, viz., Trs. Fr. par. Ind., Sag. Fr. occ. Ind., Sag. Par. occ. Ind. and Jugo-fr. Ind. the Santal diverged from the Paniyan and Oraon which were more or less in the same sense. In Trs. Cr. fac. Ind. the Paniyan were very close to the basis while the Santal showed a more pronounced deviation, though in the same sense as the Oraons. Similarly in four characters, viz., Sag. Fr. par. Ind., Upp. fac. Ind., Orb. Ind., and capacity the Oraon diverged from the Paniyan and the Santal. In Length ht. Ind. the Paniyan diverged from both Oraon and Santal, which deviated in the same sense. Thus the Paniyan and Oraon had the same tendency in ten characters, the Paniyan and Santal in the same number of characters, the Santal and the Oraon agreeing in eight characters only.

In the case of the Santal and Kadar, there were only three distinct divergences in a comparison of fifteen characters, viz., in Sag. Par. Ind., Sag. Occ. Ind., and Upp. fac. Ind. In Sag. Par. Ind. the Santals with + 20 had the same tendency as shown by the Kol, Munda, Bhuiya, Oraon, Paniyan and Pollachi in more or less pronounced form; while the Kadar with − 30 agree with Wedda, Fergusson, Poulayan and Senoi. In Sag. Occ. Ind. the Kadar commonly with the Poulayan and Senoi showed a slightly higher value than the basis, the others tending oppositely. In Upp. fac. Ind. the Santals in common with the Senoi

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showed a negligibly higher value than the basis (with the Paniyans not far away), while the Kadar and others deviated oppositely.

A comparison between the Poulayan, Senoi and Wedda in seventeen characters showed a convergence or tendency to converge in eight characters, viz., Length br. Ind., Breadth ht. Ind., Trs. Fr. par. Ind., Sag. Fr. par. Ind., Sag. Fr. occ. Ind., Sag. Par. occ. Ind., Sag. Par. Ind. and capacity, the Poulayan exceeding the minimum variation of the basis group in Sag. Fr. par. Ind. The Poulayan diverged commonly from Senoi and Wedda in Sag. Fr. Ind., Upp. fac. Ind., Orb. Ind. and Long. Cr. fac. Ind.; Wedda and Poulayan diverged from the Senoi in Length ht. Ind. and Trs. Cr. fac. Ind., while Senoi and Poulayan commonly diverged from the Wedda in Sag. Occ. Ind., Nas. Ind. and Jugo-fr. Ind. Thus Senoi and Wedda deviated in the same sense in twelve characters and diverged in five; Senoi and Poulayan deviated in the same sense in eleven characters and diverged in six; while Poulayan and Wedda deviated in the same sense in ten characters, diverging in seven.

Relative deviations of the Kol etc., from the Wedda basis (Table IV).

We were enabled to make a more intimate comparison of the divergences of the Anterior Indian tribal groups by using Prof. F. Sarasin's recently completed data on ten Wedda skulls as the basis group. This series was especially advantageous as it had the full complement of all the characters compared and at the same time gave us the means of testing the true affinities of the Anterior Indian aborigines to the well known tribe from which it originates. Attention is nevertheless drawn to the differences shown by the two Wedda series in respect of the means of some of the characters.

A comparison was made in the first instance of the Fergusson, Rajput and Kol by means of Mollison's "Abweichungs-diagramm." The resemblances of the three groups again appeared remarkable. In Sag. Fr. occ. Ind., Fr. Sag. arc. Ind. and Sag. Occ. Ind., the Kol and Fergusson are closer to each other than to the Rajput. In some respects, the Kol and Rajput are closer to each other than to the Fergusson series, viz., Sag. Par. Ind. and Jugo-fr. Ind.; the same may also be said of Long. Cr. fac. Ind., in which the Kol and the Rajput slightly exceed the basis group and the Fergusson correspond to its maximum variation. In Trs. Cr. fac. Ind. the Kol practically conform to the basis while the Fergusson and Rajput deviate oppositely. In capacity the Rajput though showing a minus deviation are close to the basis while the other two groups deviate in opposite directions. As the capacity of the Kol skulls were measured by Turner and of the other two by Müller it is not improbable that the figures are affected by differences in technique.

The figures in Table IV help us to find out whether the divergences of the Kol from the Fergusson series are due to isolated tendencies. As regards Sag. Par. Ind. all the groups excepting the Fergusson, Kadar, Poulayan and Senoi deviate from the Wedda in the same sense as the Kol. (Note the change in value of the two basis groups!) In Jugo-fr. Ind., the Munda, Oraon and

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Paniyan deviate from the basis in the minus direction same as the Kol and Rajput, whereas Pollachi and Senoi deviate in opposite direction; the other groups being disposed on either side of the basis in close proximity to it. In Long. Cr. fac. Ind., the Bhuiya, Pollachi and Poulayan more or less show the same tendency as the Fergusson series to deviate in a pronounced manner from the basis; the Oraon actually conform to the basis, while the other groups show the same slightly marked tendency to exceed it, same as the Kol and Rajput. (The deviation of the Kadar is questionable owing to the inadequacy of the average.) In Trs. Cr. fac. Ind., the Oraon and the Kadar show the same negligible tendency to exceed the basis, the Paniyan and the Poulayan to fall short of it (likewise the Bhuiya !), while the Munda and Santal deviate in the same sense as the Rajput, the Pollachi and the Senoi deviating oppositely as the Fergusson series. In capacity the Munda actually conform to the basis with the Rajput and Santal very close to it, all the other groups excepting the Paniyan and the Fergusson exceeding the basis in a more or less pronounced manner.

In all other characters the three groups converge or exhibit similar tendencies. The tendency to low faces (Euryēn) is more pronounced in the Kol than in the other two groups, but not so pronounced as in the Munda and the Kadar. (All three descend below the minimum variation of the basis group !). This tendency is not marked in the Paniyan, least marked in Santal and Senoi (Pollachi and Fergusson should be reckoned here !), while the Rajput, Bhuiya, Oraon and Poulayan show it in a moderate degree. The tendency of the Kol to exceed the minus variation of the basis group in respect of Orb. Ind. is shared by the Munda, Bhuiya, Oraon, Pollachi and Poulayan, the Paniyan and Senoi negligibly exceeding the basis group. The other groups show moderately marked tendencies to deviate in the same sense as the Kol. In Nas. Ind. the Oraon actually conform to the basis, while the Munda, Poulayan and Senoi exceed it in more or less pronounced degrees. The others deviate oppositely in common with the Kol, though none descends below the limit of the minus variation of the basis like the Kol.

A comparison between the Kol, Oraon and Paniyan in respect of twenty-one characters showed similar tendencies in Length br. Ind., Trs. Fr. par. Ind., Sag. Fr. occ. Ind., Sag. Par. occ. Ind., Fr. Sag. arc. Ind., Par. Sag. arc. Ind., Occ. Sag. arc. Ind., Sag. Par. Ind., Trs. Cr. fac. Ind., and Jugo-fr. Ind.; to be mentioned in this connexion is Long. Cr. fac. Ind., wherein the Oraon correspond to the basis while the other groups show slightly higher values than the basis. The Oraon diverged from the Paniyan and Kol in four characters, viz., Length ht. Ind., Sag. Fr. Ind., Sag. Occ. Ind. and Nas. Ind. The Oraon and Kol diverged commonly from the Paniyan in six characters, viz., Breadth ht. Ind., Hor. cirm. ht. Ind., Sag. Fr. par. Ind., Upp. fac. Ind., Orb. Ind. and capacity. If the similarities are recognized in eleven characters, then the Oraon agree

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with the Kol in seventeen of the twenty-one characters, and with the Paniyan in eleven characters only The Paniyan and Kol agree in fifteen characters.

On comparing the Santal, Oraon, Bhuiya, Munda and Kol, the five groups were found to have similar tendencies in seven of the twenty-three characters considered, viz., Length br. Ind., Trs. Par. occ. Ind., Sag. Fr. occ. Ind., Occ. Sag. arc. Ind., Sag. Par. Ind., Upp. fac. Ind. and Orb. Ind. In five characters the Santal diverged from some of the other groups commonly with the Kol, viz., Breadth ht. Ind., Hor. cirm. ht. Ind., Fr. Sag. arc. Ind., Sag. Fr. Ind. and Nas. Ind. In eleven characters, viz., Length ht. Ind., Forehd. br. Ind., Trs. Fr. par. Ind., Sag. Fr. par. Ind., Sag. Par. occ. Ind., Par. Sag. arc. Ind., Sag. Occ. Ind., Trs. Cr. fac. Ind., Fr. biorb. Ind., Jugo-fr. Ind. and capacity the Santal diverged away from the Kol. Similarly in Length ht. Ind., Sag. Fr. Ind., Sag. Occ. Ind., Nas. Ind. and Fr. biorb. Ind. the Oraon diverged away from the Kol ; while in Breadth ht. Ind., Hor. Cirm. ht. Ind., Forhd. br. Ind., Trs. Fr. par. Ind., Sag. Fr. par. Ind., Sag. Par. occ. Ind., Fr. Sag. arc. Ind., Par. Sag. arc. Ind., Trs. Cr. fac. Ind., Jugo-fr. Ind. and capacity the Oraon diverged in the same sense as the Kol. The Bhuiya diverged away from the Kol in Breadth ht. Ind., Hor. cirm. ht. Ind., Fr. Sag. arc. Ind., Sag. Fr. Ind., Sag. Occ. Ind., Trs. Cr. fac. Ind. and Fr. biorb. Ind., and deviated in the same sense as the Kol in Length ht. Ind., Forhd. br. Ind., Trs. Fr. par. Ind., Sag. Fr. par. Ind., Sag. Par. occ. Ind., Par. Sag. arc. Ind., Nas. Ind., Jugo-fr. Ind. (slightly indicated), and capacity. The Munda deviated in the same sense as the Kol in Length ht. Ind., Forhd. br. Ind., Trs. Fr. par. Ind., Sag. Par. occ. Ind., Fr. Sag. arc Ind., Sag. Fr. Ind., Fr. biorb. Ind. and Jugo-fr. Ind., and diverged from the Kol in Breadth ht. Ind., Hor. cirm. ht. Ind., Sag. Fr. par. Ind., Par. Sag. arc Ind., Sag. Occ. Ind., Nas. Ind., Trs. Cr. fac. Ind. and capacity. Thus of the twenty-three characters, the Santal agree or tend to agree with the Kol in twelve characters and diverge in eleven ; the Oraon agree or tend to agree with the Kol in eighteen characters and diverge in five ; the Bhuiya agree or tend to agree with the Kol in sixteen characters and diverge in seven ; while the Munda agree or tend to agree with Kol in fifteen characters and diverge in eight.

A comparison was made of the Poulayan, Pollachi, and Kadar with the Kol for examining the affiliations of the three southern groups. These were further compared with the Senoi for determining if the divergences of the three groups from the Kol were taking place in a known direction or were of independent nature. In the first place we eliminated four of the twenty characters, viz., Length br. Ind., Breadth ht. Ind., Sag. Occ. Ind. and Upp. fac. Ind. in which all the groups showed similar tendencies. In five of the remaining sixteen characters, the Kol stood out from all the other groups, viz., Sag. Fr. occ. Ind. (with the Poulayan conforming to the basis), Sag. Par. occ. Ind., Par. Sag. arc Ind., Occ. Sag. arc. Ind. (with the Pollachi conforming to the basis) and Jugo-fr. Ind. In eleven characters some of the groups deviated from the basis in the same sense as the Kol, while one or several of the others deviated oppositely.

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There were several characters in which one of the groups stood out from the others under comparison. Of these the Kadar had the largest number, viz., Length ht. Ind., Sag. Fr. par. Ind. and Long. Cr. fac. Ind. As the tendency of the Poulayan to exceed the basis group in Trs. Fr. par. Ind. in the same sense as the Kadar (with the other groups deviating in the minus direction) is negligible, this index is also to be mentioned in this connexion. The Senoi stood out from the other groups in Orb. Ind.

We thus had six characters in which more than one group was found diverging from the Kol. These were Hor. cirm. ht. Ind. and Nas. Ind. in which the Poulayan and Senoi deviated in the same sense; Fr. Sag. arc Ind. and Sag. Par. Ind., in which the Poulayan, Kadar and Senoi deviated in the same sense; Sag. Fr. Ind. in which the Pollachi and the Senoi deviated in the same sense and Trs. Cr. fac. Ind. in which the Senoi, Pollachi and Poulayan (slightly indicated), deviated in the same sense. In the five characters in which the Kol stood out from the other groups, the association of the latter with Senoi was also clear except for Poulayan in Sag. Fr. occ. Ind. and Pollachi in Occ. Sag. arc Ind., the two groups corresponding to the basis.

The comparison disclosed therefore the more or less marked tendency of the Kadar, Poulayan and Pollachi to diverge from the Kol in the direction of the Senoi. This tendency seems to be most marked in Poulayan, while the Kadar show a few independent divergences.

The significance of the relative deviations.

The preceding analysis of the two series of relative deviations points to the close affinities of the Fergusson, Wedda and Kol in respect of craniological characters compared. The affinities between the Fergusson, Wedda and Rajput skulls have been already pointed out by Müller who instituted a comparison of their morphological and metric characters. From his study of the "Abweichungs-diagramms" of the three groups he concludes: "Der Verlauf der drei mittleren Variationslinien zeigt einmal, dass zunächst unter den Gruppen selbst nahe verwandtschaftliche Beziehungen bestehen, sodann kommen aber auch wieder die engen Beziehungen der drei Gruppen zu den Weddaschädeln von Ceylon zum Ausdruck. Mithin kann gesagt werden, dass in der Bevölkerung von Rajputana (Zentral Indien) und Nepal sowie in Seran und Normanby–Fergusson ein dolichokephales Kleinwuchselement steckt, das den Wedda von Ceylon entspricht." The same element is represented in the Kol perhaps in a purer form, though we would not say the same of all the Kol population of Anterior India. The limited scope of our work, however, does not permit us to trace the affinities of the widely distributed race whose scattered fragments we have in the populations under discussion;[65] nor to study the nature of the variations that are found between its numerous members outside our Fatherland.

65. Rivet, P.: Les Océaniens. *Jour. Asiatique,* 1933, pp. 235-256. Cf.

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Nevertheless the divergences of the Kol, Wedda and Fergusson from one another assume a peculiar significance when we find that similar tendencies are present in some of the Anterior Indian tribes. If one of them differ from the Kol or the Wedda in some craniological character or characters, that by itself can not be evidence of miscegenation in that tribe; there may be other groups far away who may show genetically the same characters. One must however reckon with the possibility that such resemblances may be of independent origin. There is at the same time no reason to believe that the ancestors of the present day "Binnen-Weddas" and the Keonjhar Kols did not normally possess a certain degree of variability among themselves.

One aspect of this variability at least is illustrated by some of the divergences of the Kol. For example, they are not so dolichocephal as the Wedda. The same could be said of several other Anterior Indian tribes. As Martin pointed out: "Auch die Kymotrichen Vorder-Indiens haben nicht durchweg die gleiche Kopfform, obwohl allerdings eine leichte Dolichokephalie und Mesokephalie vorzuherrschen scheint. So wird, um nur einige Zahlen zu nennen, der L. B. I. der Yeruva mit 73.6, derjenige der Paniyan mit 74.0, der Irula mit 75.8 angegeben" (1905).[66] In the same sense is the tendency to have low faces (Euryēn) noticed in some of the tribes, though not always so pronounced as in the Kol, Munda and Kadar; also the tendency to have medium high orbita, (close to the lower limit of Mesokonch).

Another clue to the nature of these normal variations is offered by the Paniyan. In comparing the deviations of this tribe with those of the Wedda from the Negro basis, it was found that some of its divergences from the Wedda are also represented in the other tribes, mostly in the Oraon and Munda. An examination of the deviations of the Paniyan, Oraon and Santal from the Negro basis, and likewise the deviations of the Paniyan, Oraon and Kol from the Wedda basis showed that the Paniyan had similar tendencies as the more northern groups in respect of a large number of characters. A possible explanation of their divergences from the Wedda compared to the Negro basis lies in their inbred character.[67] That there is considerable affinity otherwise between the northern and southern tribes was apparent in the comparisons of the deviations of the Bhuiya and Pollachi, and the Santal and Kadar from the Negro basis. These groups were of course specially selected for such comparison and

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Schlaginhaufen, O.—Schädel aus dem nordwestlichen Siam. Amer. Jour. Phys. Anthrop. XXVI, 1940, pp. 367-368, abstract in Anthrops. XXXV-VI, 1940-41, p. 403.

66. Martin, R.: *op. cit.* p. 1035.

67. Macfarlane, E. W. E. Blood-Group Distribution in India with special reference to Bengal. *Journ. of Genetics*, XXXVI, 1938, pp. 225-237.

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serve only to illustrate the convergent tendencies of the variations prevailing in the north as well as in the south.

Yet another kind of variation is noticed in the Poulayan. In comparing the deviations of the Paniyan and the Poulayan from the Negro basis we noticed that while both groups shared a number of similar tendencies with the Wedda, there are a number of characters in respect of which they behave to each other and to the Wedda in such a manner that where one of them agrees or tends to agree with the Wedda, the other diverges away. It was also found that the divergences of the Paniyan from the Wedda mentioned above corresponded to similar divergences from the Wedda noticeable in other groups but none in the Poulayan. Among the divergences of the Poulayan from the Wedda considered from the Negro basis were a number which had their correspondence in the Kadar, Senoi, Pollachi, Fergusson, besides Santal, Bhuiya and Munda among the northern groups. In the comparison of the deviations of the Poulayan, Pollachi, Kadar with Kol and Senoi, we found after elimination of all the characters in which the three southern groups agreed or tended to agree with Kols, five characters in which all diverged from Kols and six characters in which two or three groups diverged commonly from the Kols. In these eleven characters, the Senoi were clearly associated with the groups diverging from the Kol, above all with the Poulayan. The Kadar showed some independent divergences from the Kol in addition to a number of tendencies commonly shared with the Senoi. This, in addition to the fact that no single group diverged from the Kol in all the characters and also that the number of characters in which all the groups diverged commonly from Kol, suggests that the Poulayan, Pollachi and Kadar are differentiating along individual lines in the direction of the Senoi, the Kadar only less so. A consideration of the deviations of the Poulayan, Senoi and Wedda from the Negro basis also suggests the same probability, besides indicating that the Senoi may have differentiated in the same manner.

A study of the deviations of the Oraon, Bhuiya, Munda and Santal from the Wedda basis and comparison with similar deviations of the Kol indicated the affinities of the Oraon, Bhuiya and Munda in respect of a large number of characters with the Kol, while the Santal showed more divergences. A comparison of the deviations of the Paniyan, Oraon and Santal and those of Santal and Kadar from the Negro basis indicated closer affinities between the Santal and the southern groups considered. The deviations of the Oraon and Paniyan compared with those of the Kol from the Wedda basis showed more similarities between the Oraon and Kol than between Oraon and Paniyan, though both Oraon and Paniyan agree in a large number of characters with Kol. This corroborates Turner, who from his study of the same Oraon, Munda, Bhuiya and the Kol crania (besides a number of others) concluded as follows: "Judging, therefore, from the characters of the skull one draws the conclusion that there is no difference of moment in the form and proportions of this part of

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the skeleton between the Dravidian and Kolarian tribes and support is given to the view of their essential structural unity as advocated by Mr. Risley."[68]

Variation in the East-central and the Southern Tribes.

Comparison with the Wedda, Kol and Fergusson crania indicated certain more or less marked divergences both in the Northern or East-central and the Southern groups in respect of the cranial characters considered.[69] There is no reason to conclude that all these divergences are due to one and the same cause. In the case of the Paniyan, prolonged isolation and inbreeding, which appear to have affected their blood-group distribution, may be held responsible for its divergences from Wedda and Kol. We can not say the same of the Santals. We recall Koller's concluding remarks on the affinities of the Santal crania: "Trotz der sehr geringen Schädelzahl ergibt sich unzweifelhaft dass bei den Santal ein primitives Rassen-element vorkommt, wenn nicht vorherrscht, das viele Merkmale der "austromelanesischen Rasse" P. Sarasins, bezw. des australiformen Rassenkreises im Sinne von G. Sergi, B. Rivet, V. Lebzelter und Anderen in abgeschwächter Ausprägung zeigt. Daneben ist der Einfluss der "Ostmediterranen" bezw. "indiden" (v. Eickstedt) Rasse deutlich, wie dies bei einem Primitivstamm, der weitgehende Bindungen mit der indo-arischen Kultur eingegangen ist, kaum anders zu erwarten war." That other East central aboriginial peoples have been similarly exposed to Indo-Aryan culture from ancient times is suggested by references to the Munda in the Mahābhārata, III, 253. 15243 (Calcutta), VI, 56.2410 and the Vāyupurāṇa 45.123.[70] From the not uncertain testimony of recent miscegenation among the Oraons, Mundas, Gonds etc. (*ante*), it is tempting to conclude that the divergences of the Santals and other East-Central aborigines from the Wedda-Kol-Fergusson are due to mixo-variation arising from crossings with other races. The high relief of the root of the nose and the nasal skeleton from the facial plane of Müller's Rajput

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68. Turner, Sir Wm.—*Op. cit.*

69. The divergences between the northern and southern aborigines are so strong in other characters, that in his interpretation of the Coefficients of Racial Likeness Guha speaks of two distinct factors in the two groups, besides the Negrito in the South. He designates the northern aborigines as "Nisadic," who are "lighter in skin-colour, less prognathic and having supraorbital ridges not so stoutly developed" as the second factor among the southern aborigines. In the latter, "slightly taller, darker in skin-colour, more prognathic with stoutly developed supra-orbital ridges," he recognises a distinctly "Australoid strain." The divergences between the northern and southern tribes in respect of cranial characters may prove to be another aspect of essentially the same phenomenon.—Guha, B. S.: The Racial Affinities of the People of India, XVIe Congr. Int. d'Anthrop., Bruxelles, 1935 (1936).

70. Lévi, S.: *loc. cit.*

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skull no. 1274 from Narsinghpur (see photograph on p. 264) suggests that like the Santal, the Rajput series is not entirely free from the same East-Mediterranean strain. "Rajput" is not a tribal designation, but characterises an ethnic group composed of diverse racial elements. Almost certainly the skulls in question belonged to issues of Rajput wanderers from matings with the older settled population, perhaps the aborigines. Why then do the Rajput crania stand closer to the Kol than the Santal? We can only conclude that more light is necessary on the East-central aborigines before the mystery can be solved.

With the divergences of the southern tribes, viz., the Pollachi, Kadar and above all the Poulayan, though the possibility of miscegenation is not ruled out, we are definitely on the track of another phenomenon. Two of the above tribes, viz., the Kadar and Poulayan, have been claimed to contain a "submerged" Negrito strain in mixture with a primitive dolichocephalic race. We quote Guha at length: "I have drawn attention elsewhere[71] to the presence of frizzly hair among the Kadars of Perambiculam and Vellaripallam. During my enquiries in the interior of the Cochin and the adjoining Anaimalais hills, I found 14 individuals among the Kadars and 1 among the Pullayans with unmistakably frizzly hair . . . . It may therefore be presumed that the remnants of the Negrito race now found among the Semangs and the Andamanese, were much more widely spread at one time and extended well into the Indian continent—a few survivals being still seen in isolated 'pockets' such as among the Kadars of Perambiculam and the Pullayans of the adojoining hills. . . . . Lapicque carried out some extremely interesting investigations among the Kadars, Malasers and Pullayans in the Anaimalais hills . . . . when he visited two Kadar settlements and measured 32 adult men and 24 adult women [1903-04]. His researches convinced him that the existence of "une race nègre primitive" among these people is incontestable.[72] Accepting the definition of Quatrefages, however that the negritos are brachycephalic he remarks, "J'arrivais alors à la conception d'une race nègre primitive voisine des Negritos, mais distincte par l'indice cephalique dolichocéphale" [1905]. In my notes published in *Nature* in 1928-29 referred to before I stated that though the mean Cephalic Index of the Kadars was dolichocephalic among the individuals with frizzly hair there was a marked tendency for a rise in the index to mesorrhiny [? mesocephaly] as shown by two individuals having 77.34 and 79.29 as the values of their index which in my opinion indicated that the basis of this negrito type was probably brachycephalic or at least meso,—as in the Semangs (mean C. I. 7. 9), but large admixture with a primitive dolichocephalic race had affected the general shape

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71. Guha, B. S.: Negrito Racial Strain in India, *Nature*, May 19, 1928 and June 22, 1929.

72. Lapicque, L: Note sommaire sur une mission ethnologique dans le Sud de l'Inde. *Bull. du Museum d'Histoire Naturelle*, II, Paris, 1905, pp. 283-285.

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of the head. To the same admixture was probably also due the long spirals now seen among most of the Kadars and Pulayans with frizzly hair, in two individuals . . . . short spirals similar to '*h*' instead of '*g*' of Martin's scheme were noticed. At the present day these Negritos are found to be closely similar to the Melanesian type both in hair and head form, but judging from the presence of two men with short spirals and higher Cephalic Index, it would seem that the original type was not probably unlike that of the Semangs and the Andamanese. . . ."[73]

Unfortunately, owing to the war conditions, the only statement of Prof. Lapicque on this problem we have access to is an extract quoted by Thurston. It was published in 1906 and runs as follows :

"Dans les montagnes des Nilghirris et d'Anémalé, situées au coeur de la contrée dravidienne, on a signalé depuis longtemps des petits sauvages crépus, qu'on a même pensé pouvoir, sur des documents insuffisants, identifier avec les negritos. En réalité, il n'existe pas dans ces montagnes, ni probablement nulle part dans l'Inde, un témoin de la race primitive comparable, comme pureté, aux Andemanais, ni même aux autres Negritos. Ce que l'on trouve là c'est simplement, mais c'est fort précieux, une population métisse qui continue au delà du Paria la série générale de l'Inde. Au bord de la forêt vierge ou dans les collines partiellement défrichées, il y a des castes demi-Parias, demi-sauvages. La hiérarchie sociale les classe au-dessous du Paria. .....Eh bien, dans ces groupes, les chevelures sont en général frisées, et on en observe quelques-unes qu'on peut même appeler crépues. On a donc le moyen de prolonger par l'imagination la série des castes indiennes jusqu'au type primitif qui était (nous n'avons plus qu'un pas à faire pour le reconstruire), un Nègre. . . . . Nous sommes arrivés à reconstituer les traits nègres d'un type disparu en prolongeant une série graduée de métis. Par la même méthode nous pouvons déterminer théoriquement la forme du crâne de ce type. Avec une assez grande certitude, je crois pouvoir affirmer, après de nombreuses mesures systématiques, que le nègre primitif de l'Inde était sousdolicho-céphale avec un indice voisin 75 ou 76.[74] Sa taille, plus difficile à préciser, car les conditions de vie modifient ce caractère, devait être petite, plus haute pourtant que celle des Andamanais. Quant au nom qu'il convient de lui attribuer, la discussion des faits, sociaux et linguistiques, sur lesquels est fondée la notion de dravidien, permet d'établir que ce nègre était antérieur aux dravidiens ; il faut donc l'appeler *Prédravidien*,

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73. Guha, B. S. : *Op. cit.*, 1935, pp. *l-li.*

74. *Sousdolichocéphale* or Sub-dolichocephaly is the principal group of mesocephals ranging from 75.0 to 77.76, in use chiefly in the French school and also the Russian.—Martin, R. : Lehrbuch d. Anthropologie, II. Jena, 1928, p. 649.

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ou, si nous voulons lui donner un nom qui ne soit pas relatif à une autre population, on peut l'appeler *Nègre Paria.*"[75]

Prof. Lapicque then leaves us in no doubt that he found no negrito population in purity, comparable to the Andamanese and other negritos, but only a *"métisse"* population, half savage and half Paria. From these he proceeded to reconstitute by measurements what he considered to have been the Negro-Paria race, subdolichocephalic in head form (C. I. 75-76), which he assumed to have disappeared probably by prolonged and gradual intermixture. Of 23 Kadars measured by Thurston with an average C. I. of 72.9, varying from 69 to 80, only one reached 80. Nineteen Kadar ♂ measured by Cipriani yielded and average C. I. of 72.6, varying from 69.6 to 76.7 ; also 12 Kadar ♀ measured by the same investigator with an average C. I. of 73.2 varied between 69 and 77.6 In the 59 cases of Kadars on record, there is no segregation of brachycephaly and there does not seem to be any in Guha's Kadar series. Guha's Kadar data, the publication of which is eagerly awaited, may be expected to disclose whether among the head forms prevailing in this tribe there is any brachymorph type, which could be regarded as intrusive and associated with the Negritos. Meanwhile it should be mentioned that the occurrence of a few individuals, brachycephalic according to Length br. Ind. of the head or the skull, among the Kadar and Poulayan would not necessarily prove the existence of a submerged Negrito strain. Australian crania have been recorded with brachycephalic Indices, e. g. a female with C. I. 81.8 (Pöch) and another of the same sex from Queensland, with C. I. 81.4 (Hrdlička), which are otherwise purely Australid. Gerhardt points to a typical Wedda skull (no. 30 in F. Sarasin's newly completed data) with C. I. 79.8 ; and the Rajput skull no. 1276 with C. I. of 77.8, which would correspond to 81 and 79 respectively in the living and thus reach or cross the range of brachycephaly.[76] Populations with an average C. I. of 75 or 76 would naturally contain some brachycephalic individuals within its range of variation, e. g. 24 Poulayans measured by Thurston with mean C. I. of 76.3 and varying 72.3-83. Unless nature can be shown to abhor races or varieties with mesocephalic averages, there is no need to regard brachycephalic individuals with their range of variation as evidence of miscegenation with a race or population having a brachycephalic average, provided of course miscegenation is not otherwise indicated.

Meanwhile the significance of our own data should not be overlooked. In our analysis of the deviation of the Poulayan, Pollachi, Kadar, Senoi and Kol

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75. Lapicque, L. Les Nègres d'Asie, et la race Nègre en général. Rev. Scient. VI. Juli, 1906, cited by Thurston, E. *in* Castes and Tribes of Southern India, I. Madras, 1909, pp. xlviii-xlx.

76. Gerhardt, K.: Zur Frage Brachykephalie und Schädelform, Zeitschr. f. Morphol. u. Anthropol. XXXVII, 1938, pp. 277-489.

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from the Wedda basis we found a number of characters in which the Poulayan, Pollachi and Kadar diverged from the Kol and deviated from the Wedda in the same sense as the Senoi. We found also a few characters in which the Kadar diverged from the Kol independently of the Senoi. In comparing the deviations of the Poulayan, Senoi and Wedda from the Negro basis we found that Senoi and Wedda deviated in the same sense in twelve of the seventeen characters compared; Senoi and Poulayan deviated in the same sense in eleven characters and diverged in six; while Poulayan and Wedda deviated in the same sense in ten characters, diverging in seven. It is noteworthy, however, that both Wedda and Senoi are Kymotrichous groups, while some at least of the Kadar and Poulayan have frizzly (? lockerkraus) hair.

In his comparison of the affinities and divergences of the Wedda and the Senoi, Martin (1905) pointed out that the two agreed in stature, skin colour, hair from etc., but there were differences in body proportions and in some significant details of skull form, viz., the strong development of the glabella, a relatively flat forehead, flat vertex, steep build of the sidewalls and the relatively unpronounced development of the part of the cranium lying behind the plane of the ears —characters which are typical of the Wedda skull and are absent in the Senoi. These are according to him exactly the characters in which the Wedda approach the different forest and hill tribes of Anterior India, while the Senoi on the other hand line up with the south-east Asiatic forms. Martin concludes: Ich finde für die vorhin erwähnte Tatsache nur eine einzige Erklärung. Wenn die Haarform, wie man heute annimmt [Virchow, 1896], wirklich das sich am zähesten vererbende Merkmal darstellt und wenn daher die beiden Rassen in der Tat genetisch zusammengehören, dann muss die eine oder andere Gruppe durch irgendwelche uns verborgene Einflüsse in den erwähnten Charakteren abgeändert worden sein. Dabei braucht man noch nicht einmal an Mischung zu denken; es kann sich die extremere, gleichsam prononziertere Schädelform der Wedda auch durch Jahrtausende währende Inzucht in einem abgeschlossenen, gleichförmigen Milieu herausgebildet haben. Wahrscheinlicher ist aber vielleicht, dass sich die Senoi umgestaltet haben, weil der strengweddaische Typus sich noch in viel grösseren Verbreitung findet. Es wird übrigens keine der beiden Gruppen heute mehr genau den Typus der Grundform repräsentieren, von der sie ausgegangen sind. Machen wir also diese Annahme, so können wir auch die Senoi zu der grossen weddaischen, d. h. vor-dravidischen Menschengruppe Indiens rechnen."[77]

The problem of classifying the Senoi was only one of the problems that Martin had come upon in his research tour in the Malay Peninsula. With his flair for observing and classifying phenomena, the great *savant* noticed another series of affinities which have ultimately revolutionised the fundamental concepts

77. Martin, R.: *Op. cit.*, 1905, pp. 1031-1033.

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of modern raciology. His comparison of the Length br. Ind., Length-auricular ht. Ind., Total fac. Ind., Nas. Ind., body height and body proportions of the Senoi and the Semang led to the discovery of no characteristic divergence between the two; the only real differences lay in hair-form and skin-colour. He observed: "So sind wir jedenfalls einstweilen gleichsam an einem toten Punkt angelangt und werden zu einer prinzipiellen Entscheidung gedrängt, ob wir der Haarform oder der Kopf- und Gesichtsform die grössere Bedeutung für die Rassendiagnose zuerkennen wollen. Je nach dem die Antwort auf diese Frage ausfällt, muss natürlich die systematische Stellung der Semang zu den Senoi eine grundverschiedene werden. In früheren Zeiten würde man sich wohl einstimmig für die grössere Bedeutung der Kopfform ausgesprochen haben, heute werden sich mehr Stimmen zu Gunsten der Haarform geltend machen. Einzelne Forscher neigten zu verschiedenen Zeiten bald mehr der einen, bald mehr der Anderen Auffassung zu, so Virchow, der früher den Schädelmassen für die Rassendiagnose die grösste Bedeutung zuschrieb, während er später, gerade anlässlich der Untersuchung des Blandashaares, den Haarcharakter für die Feststellung der Rassenverwandtschaft in erste Linie stellte."[78]

Martin himself was of opinion that the knowledge of the effects of crossing and mixture acquired at his time did not suffice for a definitive answer to the question—to which of the characters, hair form or head and facial form, decisive significance should be attributed for racial diagnosis.

This difficulty has been overcome to-day by the mutation hypothesis of Martin's pupil, E. Fischer. According to this hypothesis the brachycephaly factor and the spiral hair factor are independent of each other. Fischer writes: "The mutation which led to the formation of a spirally winding hair from out of the smooth made its appearance there, where the [African] negrid stem constituted itself as such. It seems to me that this factor multiplied itself twice within this stem (alleles) viz., at the origin of the Bushmen and at the possibly parallel origin of the Central African pygmies. In the stem of the Australids, I conceive the Negritos (Semang, Andamanese, Philippinos) as distinguished by the self-same hair-mutation from the Weddids. Such a mutation appearing independently for the second time brought into existence the Papua Melanesians, and for the third time the Tasmanians. In the stem of the Europids, it did not come to an independent group formation; nevertheless it did not appear altogether seldom in individuals. Finally in the Mongoloid stem it did not appear at all."[79]

It seems probable that among the Kadar and the Poulayan, members of the Weddid (Fischer) branch of the Australid stem, *the same spiral factor is appearing independently by mutation.* Only when we know to what percentage the

78. *Ibid.*, pp. 412-416; 520-521.

79. Fischer, E.: Die gegenseitige Stellung der Menschenrassen auf Grund der mendelschen Merkmale. Comitato Ital. per lo Stud. dei Problemi della Populazione. Roma, 1932.

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Kadar and Poulayan are distinguished by "lockerkraus" hair could we say if this is a mass phenomenon at all. (According to Guha this seems to be gradually dying out.) It is significant that this mutation is appearing in groups more or less resembling the Senoi or diverging from the Kol and the Wedda in respect of certain cranial characters in the direction of the Senoi, who stand close to the Semang of "lockerkraus" hair. The probability that the frizzly hair of the Kadar and Poulayan is a mutation and not due to miscegenation with a proper ulotrichous negrito race is strengthened by the fact that the Weddids (Fischer) or Proto-australoids (Guha) resemble them in many respects, quite apart from craniological characters. The latter are described by Guha as "a dark short-statured type with long head and broad flat nose. The stature is not so short as that of the Negritos but the skin colour is much the same, varying from tawny to dark chocolate brown. In the shape of the nose and the face there is no appreciable difference, there being the same tendency in the face to project forwards, and in both, the lips are thick and often everted. What distinguishes the latter, however, from the Negritos is the form of the hair which in general is wavy and sometimes curly but never frizzly."[80]

One question still remains to clear up! It is clear that in the Kadar and Poulayan *the brachycephaly factor has not mutated along with the spiral hair factor,* or does not at least constitute a mass phenomenon. What then do their divergences from the Kol and Wedda in respect of cranial characters noticed above signify? They must have changed, as Martin presumed in the case of the Senoi, from the Weddas! But what sort of a change! Does it affect the genetical character of the populations concerned? Or should we presume the change to be due to environmental influences operating within the range of reaction of the hereditary characters, as Fischer presumes in the case of South German brachycephaly.[81] Here further material is needed before a definite conclusion can be arrived at.

Résumé.

1. In the preceding discussion of Macfarlane and Sarkar's attempt at classifying a number of Indian aboriginal tribes into two Dravidian speaking races and another race or population of Mundari speakers we have shown that the anthropometric data used by the authors was not reliable in several instances, and that the nature of variations which occur normally within members of the same race or group had not been taken into account.

2. Quite apart from the question whether blood-group data could be employed for racial classification where small populations socially grouped in tribes, living more or less in isolation, wandering about from time to time and in some

80. Guha, B. S.—The Aboriginal Races of India, *Science and Culture* IV, 1939, pp. 677-683.

81. Fischer, E.—*op. cit.*, 1936, p. 170.

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cases exposed to miscegenation are concered, the interpretation of the blood-group data was sometimes open to question. In some cases when a tribe (or a fragment of a tribe) showed any marked rise in B%, miscegenation has been taken to be the cause though no evidence has been put forward to show that miscegenation *was* the cause. In the case of the East-central tribes, Dravidian- or Mundari-speakers, no attention has been paid to the available evidence of miscegenation. While we do not naturally take for granted that the blood-groups of the tribes in question have been affected by miscegenation, an investigation of the blood-groups of the neighbouring populations would have set all doubts at rest. With such an investigation unaccomplished, and without eliminating the possibility of the Mundari-speakers' having been affected in their blood-group distribution by miscegenation with neighbouring populations, it was an error of methodology to seek to trace their affinities with the Mon-Khmer-speakers. Further, in tracing these resemblances, the ethnic affinities of the Mundari-speakers and the Mon-Khmer-speaking populations, whose blood-group distributions are claimed to be similar, were not taken into account.

3. An analysis of craniometric data from certain tribes was made. The samples were very small, but there were indications of a basic element represented among the Wedda-Kol and Fergusson (D'Entrecasteaux archipelago) series, to which the others were more or less similar in some respects and from which they diverged. The divergences in the East central groups may be due to miscegenation, but this can not be taken for granted. The significant divergences in the south occurred in three groups, two of which showed frizzly hair, probably due to mutation of the spiral hair factor. The divergences in the cranial characters are not due to mutation of the brachycephaly factor, and it is not known if they imply any genetical change in the population. The attempt to explain the diversities of the blood-group distribution of the Anterior Indian aboriginal tribes by assuming a number of races is unjustified.

Our thanks are due to Dr. Baini Prashad, Director, Z. S. I., and Dr. B. S. Guha, anthropologist to the Z. S. I., for allowing us to work in their laboratory and study their collection of skulls ; we are also in the debt of Prof. Paul Rivet and Prof. L. Lapicque of the University of Paris for allowing one of us (Chatterji) to study the collection of Kadar, Poulayan, Paniyan and Pollachi skulls collected by the latter during his research tour in South India in 1903-4 ; our thanks are further due to Principal M. N. Bose of the Carmichael Medical College, Calcutta, for allowing one of us (his pupil Mitra) to work in his laboratory on his collection of skulls.

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TABLE III.

Relative Deviations of Wedda etc., from the Negro basis.

Character	Negro (Münter (22))			Wedda		Fergusson		Kol		Munda		Santal		Bhuiya		Oraon		Paniyan		Pollachi		Kadar		Poulayan		Senoi	
	Mean	Maxi.	Mini.	Abs. Dev.	Rel. Dev.	Abs. Dev.	Rel. Dev.	Abs. Dev.	Rel. Dev.	Abs. Dev.	Rel. Dev.	Abs. Dev.	Rel. Dev.	Abs. Dev.	Rel. Dev.	Abs. Dev.	Rel. Dev.	Abs. Dev.	Rel. Dev.	Abs. Dev.	Rel. Dev.	Abs. Dev.	Rel. Dev.	Abs. Dev.	Rel. Dev.	Abs. Dev.	Rel. Dev.
Length-breadth Index	77	5	5	− 5.1	−102	− 3.5	− 70	− 3.8	− 76	−5.6	−112	−5.5	−110	−2.9	− 58	−5.5	−110	− 6	−120	−0.2	− 4	−4.1	−82	−5.1	−102	−2.6	− 52
Length-height Index	74	6	4	− 1.3	− 33	− 0.8	− 20	− 0.9	− 23	−0.1	− 3	−2.5	− 63	+1.7	+ 28	−2.7	− 68	+1.7	+ 28	+2.1	+35	−3.4	−85 ?	−0.9	− 23	+1.5	+ 25
Breadth-height Index	96	6	8	+ 4.9	+ 81	+ 2.8	+ 47	+ 2.2	+ 37	+7.7	+128	+4.1	+ 68	+7.4	+123	+ 4	+ 67	+ 9	+150	+3.1	+52	+2.6	+43 ?	+5.7	+ 95	+5.5	+ 92
Sagittal Cran. Curv. Index	50	4	4	+ 2.9	+ 72	+ 1.5	+ 38	+ 1.8	+ 45	+2.2	+ 55	...	...	+1.8	+ 45	+3.6	+ 90	...	...	...	...	...	...	...	...	...	...
Trans. Fronto-parietal Index	70	5	7	+ 1.6	+ 32	+ 2.1	+ 42	+ 1.5	+ 30	−0.4	− 6	+4.6	+ 92	+1.1	+ 22	−0.7	− 10	−0.6	− 9	+1.6	+32	+3.2	+64	+2.7	+ 54	+1.4	+ 28
Trans. Par.-occipital Index	75	4	5	+ 5.3	+132	+ 5	+125	+ 5.2	+130	+ 5	+125	+6.3	+158	+5.3	+133	+6.1	+153	...	...	...	...	...	...	...	...	+2.5	+ 63
Sagittal Fronto-parietal Index	103	14	7	− 3.5	− 50	− 3.4	− 49	− 3.6	− 51	+1.2	+ 9	+2.7	+ 19	−7.6	−109	−2.8	− 40	+ 1	+ 7	−2.6	−37	+3.5	+25	−11.1	−159	−1.9	− 27
Sagittal Fronto-occipital Index	95	12	18	− 7.3	− 40	− 5.1	− 28	− 3.3	− 18	−1.1	− 6	−3.6	− 20	−5.3	− 29	+0.9	+ 8	+2.9	+ 24	−9.3	−52	−12.3	−68	−7.7	− 43	− 9	− 50
Sagittal Parieto-occipital Index	93	12	20	− 3.6	− 18	− 1.2	− 6	− 0.1	− 0.5	−2.6	− 13	−6.1	− 31	+1.3	+ 11	+3.3	+ 28	+1.2	+ 10	−7.5	−38	−14.7	−74	−13	− 65	−7.8	− 39
Sagittal Frontal Index	90	2	5	− 3.3	− 65	− 2.8	− 56	− 2.6	− 52	−2.7	− 54	−1.4	− 28	−3.3	− 66	−3.4	− 68	−2.8	− 56	−3.9	−78	− 2	− 40	+0.5	+ 25	−4.9	− 98
Sagittal Parietal Index	89	3	5	− 0.8	− 16	− 0.8	− 16	+ 0.4	+ 13	+ 2	+ 67	+0.6	+ 20	+0.7	+ 23	+1.7	+ 57	+0.5	+ 17	+0.6	+20	−1.5	−30	−1.1	− 22	−2.1	− 42
Sagittal Occipital Index	86	5	5	− 1.9	− 38	− 0.3	− 6	− 1.6	− 32	−3.5	− 70	−3.2	− 64	−3.2	− 64	−6.7	−134	−2.2	− 44	−1.2	−24	+0.4	+ 8	+0.7	+ 14	+0.5	+ 10
Upper Facial Index	51	8	7	− 0.2	− 3	− 0.2	− 3	− 3	− 43	−4.7	− 67	+0.3	+ 4	−1.5	− 21	−1.8	− 26	+0.8	+ 10	−0.2	− 3	− 4	−57	−1.6	− 23	+0.3	+ 4
Orbital Index	80	15	9	+ 3.1	+ 20	− 0.2	− 2	− 1.9	− 21	−2.4	− 27	+1.6	+ 11	−2.8	− 31	−3.2	− 36	+7.2	+ 48	−2.9	−32	+2.2	+15	−2.1	− 23	+7.3	+ 49
Interorbital Index	27	3	4	− 5.7	−143	− 6.5	−163	− 6.7	−168	−6.8	−170	...	...	−7.2	−180	−6.3	−158	...	...	...	...	...	...	...	...	− 6	−150
Nasal Index	54	10	7	− 1.4	− 20	− 3.3	− 47	− 5.9	− 84	+0.7	+ 7	−2.6	− 37	−2.2	− 31	−0.7	− 10	−3.2	− 46	−1.7	−24	− 2	−29	+ 2	+ 20	+2.8	+ 28
Trans. Cran. Fac. Index	96	6	6	+ 0.2	+ 3	− 1.4	− 23	+ 0.7	+ 12	+2.9	+ 48	+3.7	+ 62	−0.6	− 10	+0.8	+ 13	+0.2	+ 3	−1.7	−28	+0.9	+15	−0.1	− 1.7	−2.6	− 43
Long. Cran. Fac. Index	55	10	4	− 1.7	− 42	+ 0.8	+ 8	− 2.8	− 70	−2.9	− 73	...	...	+0.4	+ 4	−3.4	− 85	−3.2	− 80	−0.3	− 8	−3.7	−93 ?	−0.7	+ 7	− 3	− 75
Fronto-biorbital Index	88	6	4	+ 2.1	+ 52	+ 1.6	+ 27	+ 0.6	+ 10	−1.6	− 40	+5.4	+ 90	+3.8	+ 63	+2.6	+ 43	...	...	...	...	...	...	...	...	+ 6	+100
Yugo-frontal Index	73	10	8	+ 0.5	+ 5	+ 2	+ 20	− 0.9	− 11	−2.5	− 31	+1.9	+ 19	+1.3	+ 13	−1.3	− 16	−0.8	− 10	+3.1	+31	+2.5	+25	+2.6	+ 26	+3.6	+ 36
Capacity	1364	263	259	− 179	− 69	− 214	− 83	− 72	− 28	−149	− 58	−154	− 59	− 23	− 9	+0.2	...	−177	− 68	−76.5	−30	...	...	− 44	− 17	− 69	− 27

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TABLE IV.

Relative Deviations of Kol etc., from the Wedda basis.

Character	Wedda (10) Mean	Wedda (10) Maximum	Wedda (10) Minimum	Fergusson Abs. Dev.	Fergusson Rel. Dev.	Rajput Abs. Dev.	Rajput Rel. Dev.	Kol Abs. Dev.	Kol Rel. Dev.	Munda Abs. Dev.	Munda Rel. Dev.	Santal Abs. Dev.	Santal Rel. Dev.	Bhuiya Abs. Dev.	Bhuiya Rel. Dev.	Oraon Abs. Dev.	Oraon Rel. Dev.	Paniyan Abs. Dev.	Paniyan Rel. Dev.	Pollachi Abs. Dev.	Pollachi Rel. Dev.	Kadar Abs. Dev.	Kadar Rel. Dev.	Poulayan Abs. Dev.	Poulayan Rel. Dev.	Senoi Abs. Dev.	Senoi Rel. Dev.
Length-breadth Index	70.1	9.7	5.2	+3.4	+ 35	+ 1.7	+ 18	+3.1	+32	+1.3	+13	+1.4	+ 14	+4.0	+ 41	+1.4	+ 14	+ 0.9	+ 9	+ 6.7	+ 69	+2.8	+ 29	+1.8	+ 19	+4.3	+ 44
Length-height Index	72.0	5.5	7.6	+1.2	+ 20	+ 0.8	+ 15	+1.1	+20	+1.9	+35	−0.5	− 7	+3.7	+ 67	−0.7	− 9	+ 3.7	+ 67	+ 4.1	+ 75	−1.4	− 18?	+1.1	+ 20	+3.5	+ 64
Breadth-height Index	102.8	10.0	6.5	−3.6	− 61	− 3.4	− 51	−4.6	−71	+0.9	+ 9	−2.7	− 42	+0.6	+ 6	−2.8	− 43	+ 2.2	+ 22	− 3.7	− 57	−4.2	− 65?	−1.1	− 17	−1.3	− 20
Horizontal circum. height Ind.	26.2	2.1	1.6	−0.7	− 43	− 0.4	− 25	−0.4	−25	+0.3	+14	−0.5	− 31	+1.0	+ 48	−0.5	− 31	+ 0.7	+ 33	− 0.1	− 6	−0.8	− 50?	+0.4	+ 19	+0.4	+ 19
Sagittal Cran. Curv. Index	54.5	5.3	4.5	−3.0	− 65	− 2.9	− 64	−2.7	−60	−2.3	−51	...	...	−2.7	− 60	−0.9	− 20	...	...	...	...	...	...	...	...	...	...
Forehead-breadth Index	85.6	6 2	7.4	−1.4	− 18	− 3.2	− 46	−2.1	−28	−3.5	−47	0	0	−3.7	− 50	−4.2	− 57	...	...	...	...	...	...	...	...	−2.2	− 30
Trans. Fronto-parietal Index	72.5	5.3	6.9	−0.4	− 6	− 1.8	− 26	−1.0	−15	−2.9	−42	+2.1	+ 40	−1.4	− 20	−3.2	− 46	− 3.1	− 45	− 0.9	− 13	+0.7	+ 13	+0.2	+ 4	−1.1	− 16
Trans. Par.-occipital Index	80.8	6.3	6.9	−0.8	− 11	− 0.9	− 12	−0.6	− 9	−0.8	−12	+0.5	+ 8	−0.5	− 7	+0.3	+ 5	...	...	...	...	...	...	...	...	−3.3	− 48
Sagittal Fronto-parietal Index	100.9	8.9	8.7	−1.3	− 14	− 3.9	− 45	−1.5	−17	+3.3	+37	+4.8	+ 54	−5.5	− 63	−0.7	− 8	+ 3.1	+ 35	− 0.5	− 6	+5.6	+ 63	−9.0	−103	+0.2	+ 2
Sagittal Fronto-occipital Index	87.5	10.0	8.5	+2.4	+ 24	+ 0.2	+ 2	+4.2	+42	+6.4	+64	+3.9	+ 39	+2.2	+ 23	+8.4	+ 84	+10.4	+ 104	− 1.8	− 21	−4.8	− 57	−0.2	− 2	−1.5	− 18
Sagittal Par.-occipital Index	86.8	10.7	6.1	+5.0	+ 46	+ 4.1	+ 38	+6.1	+57	+3.6	+34	+0.1	...	+7.5	+ 70	+9.5	+ 89	+ 7.4	+ 69	− 1.3	− 21	−8.5	−139	−6.8	−112	−1.6	− 26
Fronto-sagittal arc Index	34.6	2.3	1.9	−0.6	− 31	+ 0.3	+ 13	−0.5	−26	−1.3	−68	−0.9	− 48	+0.5	+ 22	−0.8	− 42	− 1.4	− 74	+ 0.5	+ 22	+0.4	+ 17	−0.9	− 47	+0.2	+ 9
Parieto-sagittal arc Index	34.8	2.0	1.8	−0.8	− 44	− 0.8	− 44	−1.0	−56	−0.1	− 6	+0.8	+ 40	−1.3	− 72	−0.9	− 50	− 0.4	− 22	+ 0.5	+ 25	+2.5	+125	+2.0	+100	+0.4	+ 20
Occipito-sagittal arc Index	30.2	2.2	2.2	+0.9	+ 40	+ 0.6	+ 27	+1.0	+45	+1.0	+45	+0.6	+ 27	+1.2	+ 55	+2.2	+100	+ 2.1	+ 96	0	0	−1.4	− 64	−0.8	− 36	−0.2	− 9
Sagittal Frontal Index	86.7	3.3	2.7	+0.5	+ 18	+ 0.6	+ 18	+0.7	+21	+0.6	+18	+1.9	+ 58	0	0	−0.1	− 4	+ 0.5	+ 15	− 0.6	− 22	+1.3	+ 39	+3.8	+115	−1.6	− 59
Sagittal Parietal Index	88.5	3.9	4.0	−0.3	− 8	+ 1.5	+ 38	+0.9	+23	+2.5	+64	+1.1	+ 28	+1.2	+ 31	+2.2	+ 56	+ 1.0	+ 26	+ 1.1	+ 28	−1.0	− 25	−0.6	− 15	−1.6	− 40?
Sagittal Occipital Index	83.0	3.5	3.5	+2.1	+ 60	− 0.1	− 3	+1.4	+ 40	−0.5	−14	−0.2	− 6	−0.2	− 6	−3.7	−106	+ 0.8	+ 23	+ 1.8	+ 51	+3.4	+ 97	+3.7	+106	+3.5	+100
Upper Facial Index	51.9	1.8	3.5	−1.1	− 31	− 1.7	− 48	−3.9	−111	−5.6	−160	−0.6	− 17	−2.4	− 69	−2.7	− 77	− 0.1	− 3	− 1.1	− 31	−4.9	−140	−2.5	− 71	−0.6	− 17
Orbital Index	86.6	8.5	7.6	−6.8	− 89	− 4.8	− 63	−8.5	−111	−9.0	−118	−5.0	− 66	−9.4	−124	−9.8	−129	+ 0.6	+ 7	− 9.5	−125	−4.2	− 55	−8.7	−115	+0.7	+ 8
Interorbital Index	22.5	2.5	3.4	−2.0	− 58	− 1.6	− 47	−2.2	− 65	−2.3	−68	...	...	−2.7	− 79	−1.8	− 53	...	...	...	...	...	...	...	...	−1.5	− 44?
Nasal Index	53.3	3.9	3.3	−2.6	− 78	− 1.4	− 42	−5.2	−158	+1.4	+36	−1.9	− 58	−1.5	− 46	0	0	− 2.5	− 76	− 1.0	− 30	−1.3	− 41	+2.7	+ 69	+3.5	+ 90
Trans. Cran.-fac. Index	96.5	5.7	8.7	−1.9	− 21	+ 1.5	+ 23	+0.2	+ 4	+2.4	+42	+3.2	+ 56	−1.1	− 13	+0.3	+ 5	− 0.3	− 3	− 2.2	− 25	+0.4	+ 7	−0.6	− 7	−3.1	− 36
Long.-Cran.-fac. Index	51.6	4.2	3.0	+4.2	+100	+ 0.5	+ 12	+0.6	+14	+0.5	+12	...	...	+3.8	+ 91	0	0	+ 0.2	+ 5	+ 3.1	+ 74	−0.3	− 10?	+4.1	+ 98	+0.4	+ 10
Fronto-biorbital Index	90.4	4.6	6.4	−0.8	− 12	− 1.0	− 16	−1.8	−28	−4.0	−63	+3.0	+ 65	+1.4	+ 30	+0.2	+ 4	...	...	...	...	...	...	...	...	+3.6	+ 78
Jugo-frontal Index	75.1	6.4	9.3	−0.1	−	− 3.5	− 37	−3.0	−32	−4.6	−50	−0.2	− 2	−0.8	− 9	−3.4	− 36	− 2.9	− 31	+ 1.0	+ 16	+0.4	+ 6	+0.5	+ 8	+1.5	+ 23
Capacity in c. c.	1215	78	107	−65	− 61	−10.0	− 9	+ 77	+99	0	0	− 5	− 5	+126	+162	+151	+194	− 28	− 26	+ 73	+ 96	...	...	+105	+135	+ 80	+103

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HINDU ARCHITECTURE AND SCULPTURE

(Continued from p. 182).

By P. K. ACHARYA.

Pillars, as stated above, are the regulator of an architectural composition. They supply both stability and beauty to a structure. Thus in architectural buildings columnar treatment is considered the chief feature. This is proved both in theory and practice both in India and other countries. In the Mānasāra details of various types of pillars, their bases, pedestals, capitals, entablature and the ornaments are referred to in detail. In our ancient monuments pillars of such beauty and success have been found that interested historians have been at pains to prove that they must have been imported either from Persia or Greece and Rome.

The next remarkable feature of all architectural buildings, not only in India but all over the world, is variously known as the dome, tower, spire of Śikhara. It is like in human body the Head of a building. As human beings cannot be recognised without the face, similarly no headless building can be properly called an architectural structure. It is common knowledge that the dome is the most distinguishing feature of mosques, the spire of Churches, and the Śikhara of temples. But it is also to be noted that that feature is not limited to religious buildings alone. Dwelling houses, palaces, and public buildings are equally furnished with their head in the tiniest shape of a tower, dome, spire or śikhara. The tiniest of a Hindu temple, a Muslim mosque and a Christian church can boast of its remarkable head. Indeed the philosophy of life and the cultural and artistic attainments of a people are clearly indicated by the shape, design and workmanship of the top portions of their religious and civil buildings. The sharply ended spire and Śikhara point to the infiniteness of the god of worship whose image in some form is contained within the body proper.

The inside arrangements of artistic buildings are no less remarkable. For a tropical country like India roofs and terraces around the Śikhara, balconies and Verandahs together with their railings of various designs serve the double purpose of utility and beauty. Both in the Mānasāra and in the extant Hindu buildings Verandahs and balconies are very remarkable.

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Similarly the steps and staircases add beauty, comfort and dignity to a house. The wonderful flights of steps which were constructed for climbing hills, *ghats* at rivers, seas and tanks, are a remarkable feature of Hindu Architecture. In the standard treatise as well as in epics and other branches of literature references to stately *sopāna* (step) are met with. The hand rails of the staircases terminating at both ends with various designs add charm to the whole building. The hand rails for staircases and for Verandahs and balconies as well as the parapets at the roof seem to have supplied the idea of the famous Buddhist railings which from the fifth century B. C. developed into a separate class of architectural objects. The railings at Sanchi, Bharahut, Bodhgaya and other places are well known.

The situation of doors and windows in the period of the Vāstu-śāstra imply the internal safety and security on the one hand and the scientific and aesthetic taste on the other. Various practices appear to have been in vogue as regards the position of the doors in dwelling houses or rooms and in the public temples, halls, palaces and mansions. Many authorities have denied doors in the middle of the front walls of bed rooms, etc., while such doors for kitchen and public buildings were specially emphasised.

The architectural ornaments are known as mouldings. In Hindu architecture these basic mouldings number as many as forty-seven.[6] Thus we have a very large variety of ornaments in our buildings, although plain buildings were also known and practised. The result of Hindu ornamentation may be illustrated by a brief reference to the Piprahwa stūpa of the fifth century and the Konarak temple known as the black Pagoda on the coast of Orissa built in the ninth century A.D. and partly modified in the thirteenth century, and the Hoysāleśvara temple at Halebid, Mysore state.

Within the limited space of this article there is hardly any room to make even a brief reference to the articles of furniture, which, in architecture, form an important part. Of course nothing except the stone beds of the Buddhist monks remain intact. But we have extensive reference, as early as the Vedas and the Buddhist scriptures, to sacrificial seats, raised seat for councillors, wooden seat, low, rectangular, polished carved, painted, wooden bench, priestly seats, royal and divine thrones of various kinds, mats, cushions, pillows, and coverlets of various kinds, nuptial bed and beds of various kinds, made of wood, heavy and strong, with four feet, embroidered and inlaid with straps of leather in the middle. In the Buddhist literature and Vāstu-śāstras further details

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6. See the writer's Indian Architecture, pp. 127-128.

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are available.[7] The standard treatise, the Mānasāra Vāstuśāstra, has devoted twenty chapters out of a total of seventy to sculptures. There is in this a masterly classification of all images. In addition to the images of all gods and goddesses belonging to the Brahmans, Jains and Buddhists, there is a full description of statues of great personages and images of various animals and birds. The basis of the wonderful classification is a clever device known as the Tālamāna. There are twelve chief varieties of this, each of which may again be divided into the large, intermediate and small type. According to this device the total height of an image is determined by the length of its head. Thus in the eight tāla system which is applicable to the image of an average man the total height should be eight times its head. Fish etc., are measured in one tāla, birds in two tālas, Kinnaras (mythical beings with human body and horse's head) in three tālas, Bhūtas (goblins) in four tālas, Gaṇeśas (mythical being with human body and elephant's head), tigers etc. in six tālas, certain sages, Yakṣas etc. in seven tālas, certain sages and ordinary human beings in eight tālas, devotees, certain sages and Dānavas and goddesses etc. in nine tālas, Hindu gods, Buddha, Jina, etc. in ten tālas, gods of certain category in eleven tālas, and Rākṣasas (fiends) in twelve tālas.

About the actual existence and illustration of these rules enunciated in the Śilpaśāstras there need be no doubt. The stories of the Rāmāyaṇa and the Mahābrārata are beautifully illustrated in stone-sculptures in the famous Kailāsa temple at Ellura. Many Paurāṇic stories are carved in stone at the Belur temples in Mysore. The Borobudur temple in Java contains in stone sculptures not only images of Buddha and of Buddhist mythology but also of various scenes of civil life of the locality.[8]

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7. For details see the writer's Elements of Hindu Culture, pp. 80-83.
   Indian Architecture, pp. 15-16, 89-63, 65-70.
   Hindu Architecture in India and Abroad, pp. 59-62, 73-75.
8. See writer's Hindu Architecture in India and Abroad, p. 357.

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HINDU IDEAL OF LIFE

(according to the Śrautasūtras)

By BATAKRISHNA GHOSH.

> What a people *does* in relation to its gods must always be one clue, and perhaps the safest, to what it *thinks*.—Jane Harrison.

The Śrautasūtras present in a rationalised form the great sacrificial cult dating at least from the Indo-Iranian age but further developed and elaborated by the Bharadvājas, Viśvāmitras, Vasiṣṭhas and other great priestly families in India. The Śrauta sacrifices are the exclusive preserve of these Brahmin priestly classes, and even when intended for the benefit of Kings and rich patrons had to be performed by them alone. The common people had little or nothing to do with the Śrauta-sacrifices directly. Yet, everyone in the state doubtless believed in the profound and beneficial efficacy of these elaborate ritual ceremonies, which, therefore, were not without considerable influence on society.

The Gṛhya ritual, as we have seen, is predominantly magical in spirit,—the bizarre Gṛhya ceremonies being themselves regarded as the efficient and sufficient cause of the expected results even without the agency of the gods (the names of gods in the Gṛhya mantras are hardly more than magic words without any personal appeal). The Śrauta ritual, however, at least of the Ṛgvedic age when the poetry of the mantras was still a vital and moving factor and had not degenerated into meaningless magic formulas, is much different. The Ṛgvedic Śrauta sacrifices may be described as ritualised prayers,—their mantras are actually the prayers of a primitive and virile people addressed to benevolent gods, and it is these gods (and not the ritual) who are regarded as the real agents in conferring gifts and blessings on the sacrificer. But then, already in the Ṛgveda, there are passages which clearly suggest that the gods themselves were thought of as unable to resist the compelling persuation of the Śrauta-sacrifices![1] So, if the Gṛhya ritual is on the whole penetrated by motives of direct magic,

1. See Oldenberg, *Die Religion des Veda*[2], p. 319. Formulas used in Roman religion too were regarded as possessing similar power of compelling the gods (see Wissowa, *Religion u. Kultus der Römer*, p. 333).

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the Śrauta ritual, it must be admitted, is the embodiment of indirect magic at the best. Whether the Śrauta-ritual in its oldest form—in the Indo-Iranian or still earlier times—was absolutely free from the magical element will never be fully ascertained.

Everything in the Śrauta sacrifices is performed by the Brahmin priests, the Yajamāna himself having to do nothing but bestow the Dakṣiṇā, observe the Sāṃskāras such as sleeping on the ground, etc., and in special cases recite some mantras under the direction of the priests. The number of preists varies. Only the Adhvaryu is required for the Agnihotra. For the Agnyādheya as at new- and full-moon sacrifice are required three more priests, viz. Āgnīdhra, Hotā and Brahman. A fifth priest Pratiprasthātā is necessary for the Cāturmāsya-sacrifice, and at the Paśubandha we have the sixth priest Maitrāvaruṇa apart from the Śamitā. But no less than sixteen priests are necessary for the highly complicated Soma-sacrifice. The Hotā there appears with three assistants, namely the Maitrāvaruṇa, the Acchāvāka and the Grāvastut ; the Adhvaryu has as his assistants the Pratiprasthātā, the Neṣṭā and the Unnetā ; the Udgātā has under him the Prastotā, the Pratihartā and the Subrahmaṇya ; the assistants of the Brahman are also three in number, viz. the Brāhmaṇācchaṃsin, the Potā and the Āgnīdhra. According to the Kauṣītakins a seventeenth priest Sadasya is necessary for the Soma-sacrifices ; his function is to supervise the whole ceremony. From the view-point of actual practice, however, the grouping of the priests is somewhat different, for the three assistants of the Brahman and one of the assistants of the Adhvaryu, namely the Neṣṭā, are in practice helpers of the Hotā.

Nearly all the manual work connected with the Śrauta-sacrifices is performed by the Adhvaryu-priests, the others have only to recite, chant or mutter respectively the Ṛk-verses, the Sāmans and the Yajus-mantras. The Hotā with his assistants is in charge of the recitation of the Ṛk-verses, the Yajus-mantras are muttered chiefly by the Adhvaryu-priests, and the Sāmans are chanted by the Udgātā and his assistants. Without special qualities, both inherited and acquired, no Brahmin can become a professional priest, nor can every member of the three upper castes become a Yajamāna at will. Both parties have to prove their *bona fides* before a sacrificial session is undertaken. This is necessary, for the Yajamāna may cheat the priest in respect of Dakṣiṇā, and the priests in their turn may do incalculable harm to the Yajamāna by allowing intentional lapses in the course of ceremonies.

A certain number of sacrifices are regarded as basic forms (*prakṛtis*) of which the rest are supposed to be mere variations (*vikṛtis*). Thus the new- and full-moon sacrifices are the Prakṛti of all other Iṣṭis ; the Agniṣṭoma is the Prakṛti of the Dvādaśāha and the Ekāhas, and

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the Dvādaśāha in its turn is that of the Ahīnas and Sattras, etc. Each sacrifice is divided into its principal *(pradhāna)* and auxiliary *(aṅga)* parts. The Pradhāna constitutes the distinguishing feature of a sacrifice and therefore has to vary from one sacrifice to another, but the Aṅgas, of minor importance, are repeated in practically the same form in many sacrifices. Thus the Pradhāna of the full-moon sacrifice consists of the Puroḍāśa aṣṭākapāla for Agni, the Puroḍāśa ekādaśakapāla for Agni-Soma, and the Upāṃśuyāga for Viṣṇu or Agni-Soma, etc. ; all else, such as the Prayājas and Anuyājas, are mere Aṅgas which are of no importance in themselves but serve as complement to the Pradhāna. The Aṅgas of a sacrifice are known collectively as the *tantra* : a single Tantra may serve several Pradhānas if their time and place of performance are the same. The Tantra reappears in practically the same form in Vikṛtis, only the details varying sometimes.—The sacrificial offerings are of two kinds, viz. *yajatis* and *juhotis* respectively. Like all Homas not specifically excepted, they too are offered into the Āhavanīya-fire. The *yajatis* are offered by the Adhvaryu in standing posture after the Puronuvākyā and the Yājyā, the latter ending with the Vaṣaṭ-call ; the *juhotis* on the other hand are sacrificed by the Adhvaryu sitting with right knee bent, and the offering is accompanied only by Svāhā-call (no Anuvākyā or Yājyā) ; hence the *juhotis* are also known as *upaviṣṭahomas*. The Puronuvākyā of the Yajati-homa is an invocation to the deity, its Yājyā-verse (preceded by the formula *ye yajāmahe)* referring to the offering. The order to recite the Puronuvākyā is given by the Adhvaryu or the Maitrāvaruṇa. In the latter case the Adhvaryu at first addresses to the Maitrāvaruṇa the Saṃpraiṣa *"agnaye preṣaya" "somāya preṣaya"*, whereupon the Maitrāvaruṇa addresses to the Hotā the Praiṣa *"agnaye 'nubrūhi"*. Before the Yājyā the Adhvaryu says to the Āgnīdhra *"oṡm śrāvaya"*, and the latter replies *"astu śrauṣaṭ"*. Then the Adhvaryu commands the Hotā to begin recitation by saying to him *"Agniṃ (Somaṃ* etc.) *yaja"*, and the latter thereupon begins the Yājyā with the Āgur-formula *ye yajāmahe* mentioned above. The seventeen mantra-syllables, namely *"āśrāvaya" "astu-śrauṣaṭ" "yaja" "ye yajāmahe"* and *"vaṣaṭ"*, are regarded as a constant feature of Śrauta-sacrifices (see Nīlakaṇṭha on MBh. XII. 47. 43).

In the case of Soma-sacrifices the situation is infinitely more complex, for there we have over and above the usual paraphernalia the recitations and chants of the Hotā and the Udgātā and their assistants. The three characteristics of a Soma-sacrifice are the *graha* (cup), the *śastra* (hymn) and the *stotra* (song of praise) as already mentioned in the Śatapatha Brāhmaṇa (VIII. 1. 3. 4). In the Agniṣṭoma there are altogether twelve Śastras of Hotṛ-priests and twelve corresponding Ṣtotras of the Sāma-singers. Of the five Śastras of the morning press-

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ing, two (*ājya* and *praüga)* are recited by the Hotā himself and the rest by his assistants *(hotrakas)*; corresponding to these there are from the side of the Udgātṛ-priests the *bahiṣpavamāna-stotra* and four Ājya-stotras known as *dhuryas*. At the midday pressing there are two Śastras of the Hotā (*marutvatīya* and *niṣkevalya)* and three of the Hotrakas; corresponding to these five Śastras we have the *mādhyandinapavamāna-stotra* and four others known as *pṛṣṭha-stotras*. At the evening pressing there are only two Śastras (*vaiśvadeva* and *āgnimāruta),* both recited by the Hotā himself; corresponding to them the two Stotras *ārbhava-pavamāna* and *agniṣṭomasāman,* the latter also known as *yajñāyajñīya.*

The Śastras are recitations, but the Stotras are songs chanted on the melodies *(sāmans)* collected in the Sāma-saṃhitā (the *text* of the SV. is altogether of secondary importance, giving, as it does, only the words on which these melodies have to be chanted). Now, the same verse can be chanted according to one melody only, or according to various melodies; in the former case the SV.-verse concerned is called *ekasāmin,* and in the latter case, *bahusāmin.* On the other hand, the same melody may be chanted on different verses. The verses of the SV.-text have therefore often to be modified and touched up in various ways in actual chanting. This is done very often by Vikāra, as when *"agne"* is chanted as *"ognāyi"*; when *"vītaye"* is changed into *"voyi toyā2yi"* in chanting it is Viśleṣaṇa; the word *"ye"* may be distended into *"yā2ꝫyi"* by the process of Vikarṣaṇa; if a word of the original verse is uttered twice in chanting it is Abhyāsa; ungrammatical Virāma too may be forced in this way,—thus *"gṛṇāno havyadātaye"* may have to be chanted as *"gṛṇānoha vyadātaye"*; most frequently however the Ṛk-verse is accommodated to the Sāma-melody through the addition of meaningless Stobhas such as *auhovā, hāü* etc. Detailed rules about these modifications of texts in chanting are to be found in the Puṣpa-sūtra.

Every Sāman is artificially divided into several parts. The first part is the Prastāva which is introduced with *hum* and chanted by the Prastotā; the second part is the Udgītha introduced with *om* and chanted by the Udgātā; then comes the Pratihāra introduced with *hum* and chanted by the Pratihartā; and then the Nidhana or finale chanted by all together. The Partihāra moreover is divided into the Pratihāra proper and the Upadrava chanted by the Udgātā (for further details see Pañcavidha Sūtra).—If a single Sāman-melody is chanted on several verses (usually a Tṛca or a Pragātha) the whole is called a Stotra, and a Stotra in its turn, through various combinations and repetitions of its verse-chants, results in long Stomas, of which, again, different varieties *(viṣṭutis)* are possible. These Viṣṭutis, consisting of several Paryāyas, clearly show that the Sāman-chants were regarded

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purely as magical charms. The Pañcadaśa-stoma, for instance, is based only on three verses artificially constructed out of a Prägātha, i.e. a pair of verses of which the first is either a Bṛhatī or a Kakubh and the second a Satobṛhatī (Ṛkprātiśākhya, XVIII. 1); the component Pādas of this artificial verse-triad arranged in various weird ways and embellished with appropriate Stobhas etc., are then made to yield the number of verses required in the Stoma.[2]—The two Sāmans which are certainly the most important in Soma-sacrifices other than the Agniṣṭoma are the Bṛhat and the Rathantara chanted on alternate days of the Abhiplava-ṣaḍaha, while at the Pṛṣṭhya-ṣaḍaha a different Sāman is chanted on each of its six days.

The ritual of chanting the Stotras is no less elaborate than that of the recitation of the Yājyā by the Hotā. For every Stotra, the Udgātṛ-priests must formally ask the permission of the Brahman and the Maitrāvaruṇa with the words *"brahman stoṣyāmaḥ praśāstaḥ"* and the latter grant it with a formula ending with *oṃ stuta.* The Brahman should preferably be a Vasiṣṭha. The chant of the Udgātṛ-priests, already described above, is followed by the Śastra of the Hotā or the Hotrakas as the case may be,—for which the command is given to them by the Stotrakārin with the word *"eṣā"* after the last Pratihāra. The Hotā addresses to the Adhvaryu the Āhāva *"śoṃsāvoȝ"* to which the latter replies with the Pratigara *"othā modaiva"* or *"śoṃsā modaiva".* Then follows a *tūṣṇīmjapa* and then the *puroruc,* both by the Hotā. And so on.[3]—In the following we shall briefly discuss at first the simpler Haviryajñas and then the more elaborate Somasaṃsthāḥ and other sacrifices.[4]

In contradistinction from the Gṛhya-ritual for which the household fire *(gārhapatya)* alone is sufficient the Śrauta-ritual requires two more, namely the Āhavanīya and the Dakṣiṇāgni, though the Gārhapatya-fire, as the only one which (in theory at least) is never allowed to go down and also as the representative of the sacrificer, is easily the most important of the three also in Śrauta-sacrifices. The other two fires are kindled with splinters from this Gārhapatya-fire. When setting out on a journey the householder at first takes leave of the Gārhapatya and then of the Āhavanīya, and when returning home he at first

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2. See Weber, *Indische Studien,* VIII, p. 25; Hillebrandt, *Ritualliteratur,* p. 101; Caland, Introd. to Translation of *Pañcaviṁśa Brāhmaṇa;* Keith, *Religion and Philosophy,* p. 314.

3. For further details see Hillebrandt, *Ritualliteratur,* pp. 102-3; Keith, *Religion and Philosopty, loc. cit.*

4. The following is based chiefly on Hillenbrandt's *Ritualliteratur* and the *Āpastamba Śrautasūtra.*

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greets the Āhavanīya, and then the Gārhapatya : this touchingly expresses the intimate relation between the Gārhapatya fire and the householder's hearth and home. The sacrificial food is cooked on the Gārhapatya-fire, but not sacrificed into it,—it is sacrificed into the Āhavanīya. The Āhavanīya-fire, situated to the east, is the gate to heaven through which the offerings to the gods have to pass, just as the Dakṣiṇāgni (the significant designation indicates its location) into which the offerings to the Manes are sacrificed is the gate to the underworld.[5]

The elaborate ritual[6] of setting up the sacrificial fires extending over two days is technically known as Agnyādheya. A Brāhmaṇa should perform this ceremony in spring, a Kṣatriya in summer, a Rathakāra in the rainy season, a Vaiśya in autumn ; but in winter it may be performed by all. At first two huts are set up for the Gārhapatya and the Āhavanīya, the fire-altars in them being round and square respectively. The altar of the Dakṣiṇāgni, situated to the south of the Gārahapatya, is shaped like a half moon. New fire for the altars is produced by attrition and is placed on the Gārhapatya. This laying of the Gārhapatya-fire is accompanied by mantras varying according to the ancestral Ṛṣi-name of the sacrificer. Thus if the sacrificer is a Bhārgava the Gārhapatya-fire is addressed with the mantra *"bhṛgūṇāṃ tvā devānāṃ vratapate vratenā 'dadhāmi"* ; in the case of an Āṅgirasa the mantra would be *"aṅgirasāṃ tvā devānām"* etc. (Āp. 5. 11. 7).[7] The Āhavanīya-fire is then kindled with a faggot from the Gārhapatya. When the faggot is carried from the Gārhapatya to the Āhavanīya a horse is to trot in front of it : the horse here clearly represents the fire-god.[8] According to Kātyāyana the southern fire too should be kindled in the same way, but Āpastamba differing from him

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5. See Oldenberg, *Op. cit.*, p. 350.

6. Described in detail by Hillebrandt, § 59.

7. This unusual variation of the mantra strongly suggests that the fire-cult was originally developed by each of the great priestly families separately from the habitual adoration of the hearth-fire. Expressions such as *agnir bharatasya* (RV. 7. 8. 4) should be interpreted in the light of this passage of the Āp. Śr. S. rather than otherwise (as for instance Oldenberg, *Op. cit.*, p. 132 who emphasises only the point that Agni was intimately connected with the household).

8. Sūrya's horse is conventionally called *bradhna* in the RV. Originally the word must have signified some colour (cf. RV. 10. 20. 9), and a reddish colour at that (cf. RV. 1. 6. 1). This conventionalisation of the designation of Sūrya's horse suggests that already in the Ṛgvedic age Sūrya came to be specially associa-

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significantly lays down that the fire for the Dakṣiṇāgni should be fetched from somewhere else or produced separately by attrition. The Dakṣiṇāgni is doubtless the Agni Kavyavāhana of the older literature, just as Āhavanīya is the name of the older Agni Havyavāhana.[9] A pious Śrotriya or a powerful prince was expected to maintain these three fires; but there were people, held in the highest esteem, who maintained two more fires, namely the Sabhya and the Āvasathya.[10] The place of the Sabhya-fire is in the Sabhā, and it is meant exclusively for the Kṣatriya; a ceremonial game of dice is played on the occasion of the installation of this fire. The purpose of the Āvasathya-fire, mentioned along with the Sabhya (Āp. 5. 17. 1), is not clear. Hillebrandt suggests that it is the fire of the Āvasatha "retreat" in which guests from outside were entertained.[11]—The fires thus ceremonially laid by the Āhitāgni have to be maintained by him through life, and it is expected that his life would henceforth be free from all blemish. But if the fires installed at so much expense fail to produce the expected results or prevent mishaps the Āhitāgni is free to given them up and install new fires within a year (Punarādheya). It is a peculiar feature of this Punarādheya-ceremony that various case-forms of the word *agni* (e. g. *agnim, agninā* etc.) are used in the mantras employed in it (Āp. 5. 28. 6). And it is suggestive of the whole purpose of the ceremony that some of the implements used have to be repaired ones, not new.

The daily duty of offering sacrifices into the domestic fire, morning and evening, is no less binding on the Śrotriya (= Āhitāgni = Vaitānika) with at least three fires than on the ordinary Snātaka-householder with only one, but of course the duties of the Āhitāgni Śrotriya are in this regard much more onerous as clearly suggested by the description of the elaborate ceremony of Agnihotra in the Śrauta-sūtras. It is quite apparent from the significant rules about the kindling of fires for the Agnihotra that not only the continuous maintaining of three fires at least was largely a matter of theory but also that even the Gārhapatya fire was not unoften allowed to languish (see Āp. 6. 1 ff.). The southern fire, at all events, was not maintained

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ted with this animal. But not Sūrya alone, for Indra's horse too has a similar conventionalised designation in the RV., namely *hari*. It is possible at any rate that the ritual fire was contemplated as the sun.

9. Cf. Śat. Br. 2. 6. 1. 30: *havyavāhano vai devānāṁ kavyavāhanaḥ pitṝṇām*. Similarly Manu I. 95: *havyāni tridivaukasaḥ kavyāni cai 'va pitaraḥ*.

10. On these two fires see particularly Hillebrandt, *Vedische Mythologie*[2], vol. I, pp. 128-30.

11. *Vedische Mythologie*[2], vol. I, p. 129 f.-n. 7.

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continually. The chief offering at the Agnihotra is milk which should be milched preferably by an Ārya and not a Śūdra, and that from front or back-teats of the cow according to the special desires of the sacrificer. The difference between the morning- and the evening-Agnihotra is slight.—The ceremony of Prātaravaneka is mentioned as a non-obligatory adjunct to morning-Agnihotra (Āp. 6.20) while Agnyupasthāna is the similar non-obligatory adjunct to the evening-Agnihotra. Very probably this custom of performing Agnihotra twice daily had been developed already in the age of the Ṛgveda.[12]

Of periodical Śrauta sacrifices we have firstly to mention the Śrotriya New- and Full-moon (Darśapūrṇamāsa) sacrifice which is much more elaborate than that of the Gṛhya ritual and serves as the Prakṛti of all Iṣṭis. The central feature of the New-moon sacrifice is the offering of a Puroḍāśa to Indra-Agni, that of the Full-moon being a similar Puroḍāśa to Agni-Soma. "Two days were required at new moon, but one might suffice at the fullmoon."[13] The preliminary part of the ceremony is concerned chiefly with the preparation of the Vaitānika fires, taking of the vow by the sacrificer, and various other details,—one of them being that the wife of the sacrificer should look at the Ājyasthālī set before her, but not before the Āgnīdhra has twisted round her a three-fold cord. The actual sacrifice begins with the recitation by the Hotā of the fifteen "kindling" (*sāmidhenī*) verses.[14] The most interesting of the immediately following ceremonies is the Pravara, or enumeration of the Ṛṣi-ancestors of the sacrificer (see Āp. 2. 16. 6 ff.), who, if a prince, has to invoke the names of those of his Purohita in this connection (Āp. 2. 16. 10). There is also an invitation of the gods through Agni in the order in which they figure in the sacrifice. These two important ceremonies of the cult have to be performed in the interval between the first two Āghāras (i. e. the sprinkling of the Āhavanīya with butter to prevent its languishing). After the second Āghāra takes place the ceremonial election of the Hotā by the Adhvaryu, and the Ṛṣi-ancestors of the sacrificer are again mentioned in this connection. An important feature of the sacrifice is the eating of the sacrificial offering by the priests, the special shares of the Brahman and the Āgnīdhra being the Prāśitra and the Ṣaḍavatta respectively. Of the various supplementary offerings let us mention the four Patnīsaṃyājas, at the third which, addressed to the wives of the gods, the

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12. So Oldenberg, *Op. cit.*, p. 438 f.-n. 1.

13. Keith, *Religion and Philosophy*, p. 319.

14. Actually there are only eleven verses ; the number fifteen is attained by repeating thrice the first verse and the last (see Caland *ad* Āp. 2. 12. 2).

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wife of the sacrificer has to touch the Adhvaryu.[15]—An Āhitāgni should continue performing New- and Full-moon sacrifices all his life. If both sacrifices are performed on each new- and full-moon day the full course may be completed in fifteen years. The same result may be attained even in one year by performing both in the Dākṣāyaṇa form every day.

The next important recurring Śrauta-sacrifice is the Cāturmāsya, which is a generic name for the three seasonal festivals, viz. Vaiśvadeva in spring, Varuṇapraghāsas in the rainy season, and Sāṇamedhas in autumn. Common to all the Cāturmāsyas are the five initial offerings to Agni, Soma, Savitṛ, Sarasvatī and Pūṣan. At the Vaiśvadeva, with which the course of Cāturmāsyas should begin, these initial offerings are followed by a Puroḍāśa for the Maruts, a Payasyā for the Viśve Devāḥ, and a Puroḍāśa for Heaven and Earth. The chief characteristic features of the Varuṇapraghāsas are the offering of a ram and an ewe of barley, the former for Varuṇa and the latter for the Maruts, sex-marks being prominently indicated on the two figures, and the confession by the wife of the sacrificer as to the number of her lovers, either by word of mouth or by raising as many Kuśa-blades as she has had paramours.[16] These peculiar ceremonies clearly indicate that Varuṇapraghāsas was a ritualised folk-festival. The most important features of the Sākamedhas are the Pitṛyajña[16a] performed at theDakṣiṇāgni and the Traiyambakahoma offered to Rudra who is asked to partake of it along with his sister Ambikā. The Sākamedhas is followed immediately or after an interval by an offering to Śunāsīrau which is clearly an agricultural rite.—Corresponding to the Gṛhya first-fruit festival we have annual Śrauta Āgrayaṇa ceremonies prescribed for Āhitāgnis to be performed on new- or full-moon day according to the rites of the new-moon sacrifice (Āp. 6. 29. 2 ff.) for each of the new crops like rice, barley etc. in appropriate seasons.

These are the daily or periodically recurring *nitya* ceremonies

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15. The Śrāddha-ceremony of Piṇḍapitṛyajña has to be performed by the Āhitāgni in the afternoon of every new-moon day.

16. This is supposedly the only case in Vedic ritual where sin is regarded as a moral defilement and not a merely physical one removable by appropriate magical ceremonies (so Oldenberg, *Op. cit.*, p. 324). Yet the penitentiary character of many of the Prāyaścittas is so transparent that it would be certainly going too far to deny them any urge from moral compunction.

16a. in which Caland, *Über Totenverehrung bei einigen der idg. Völker*, pp. 78 f., believed to have discovered traces of a very ancient sacrifice to the Manes dating from the Indo-European era.

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which an Āhitāgni, under normal circumstances, is expected to perform all his life. But there are, besides, a host of *naimittikas* and *kāmyas* which the Āhitāgni may perform for the fulfilment of special desires or in celebration thereof. These are technically known as Iṣṭis. The Āgrayaṇa ceremonies mentioned above are typical Iṣṭis in celebration of the fulfilment of desires ; but there are other Iṣṭis aiming at the restoration of amicable relation, reconciliation between relatives, birth of a son, acquisition of wealth, etc. The Kārīrīṣṭi prescribed for those who wish for rain shows many features of pure magic (see Hillebrandt, § 66).

Śrauta animal-sacrifices form a category apart. From the description of these sacrifices it is quite clear that the purpose of the naïve and bizarre ceremonies connected with them was to introduce into the sacrificial animal active magical potency for transference to the participators at the sacrifice through the simple process of consuming its flesh or otherwise (Oldenberg, p. 331). Similarly motivated animal-sacrifices are known among many primitive peoples.[17] What is of particular interest with regard to Śrauta animal sacrifices is that the peculiar form in which they appear in the texts seems to have been developed already in the Indo-Iranian age, for the ancient Iranian animal sacrifice as described by Herodotus shows striking points of similarity.[18]—The Śrauta-sūtras distinguish between two kinds of animal-sacrifices, viz. the Nirūḍhapaśubandha, which is an independent animal-sacrifice, and the Agnīṣomīya connected with Soma-sacrifice. An Āhitāgni cannot eat flesh unless he has performed the Nirūḍhapaśubandha, and he has to continue performing it all his life, once or twice a year.

On the whole the Nirūḍha animal-sacrifice follows the model of the new-moon sacrifice. But no less than six priests are necessary for it, namely the Hotā, Adhvaryu, Āgnīdhra and Brahman as at every Iṣṭi, and also the Maitrāvaruṇa and the Pratiprasthātā (see Caland *ad* Āp. 7. 14. 4). The Maitrāvaruṇa receives a staff on stepping into the place of sacrifice which he retains till the end : he must not touch himself or anybody else with it before uttering the Praiṣas of which the purpose is to urge the Hotā to recite the Yājyās. A goat

17. Cf. the ancient Cretan custom of eating raw the flesh of the Dionysian bull in whom the god was supposed to have been incarnated (Harrison, *Prolegomena,*[2] pp. 482-5 ; Nilsson, *A History of Greek Religion,* p. 95). What may be called an eye-witness' account of this revolting Greek custom of omophagia will be found in Merejkowski's interesting noval *Naissance des Dieux.*

18. Oldenberg, *Op. cit.,* p. 342.

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without any physical blemish is sacrificed for Indra-Agni or Sūrya or Prajāpati. In animal-sacrifices other than the Nirūḍhapaśubandha various other animals, sometimes in very large numbers, are immolated, particularly oxen and sheep, the colour and quality of the victims varying according to the god for whom they are sacrificed. The preparation of the post *(yūpa)* to which the sacrificial animal is bound is elaborately described, the accompanying mantras assuring the tree which is cut down for the purpose that nobody bears it any ill-will, the size and shape of the post, as well as the particular tree that should be cut down, varying according to the special desires of the sacrificer (Āp. 6. 2. 11 ff.). The Yūpa is placed in a hole which is half within and half without the Vedi, and a cord is wound round it at a height varying as usual according to object in view. The Pāśukī Vedi at which the animal is to be sacrificed is set up east of the fire, and in the eastern third of it is constructed the Uttaravedi, and upon the latter the Uttaranābhi : at animal-sacrifices the fire of the Uttaravedi takes the place of the Āhavanīya, and the latter that of the Gārhapatya. As special utensils necessary for animal sacrifices we have the Vapāśrapaṇī on which the omentum of the victim is grilled and the Hṛdayaśūla or the spit on which the heart of the sacrificed animal is roasted. When everything is ready, the victim is bathed in perfumed water and, after Agnimanthana, is bound to the post with a cord. Then follow, as at new and full-moon sacrifice, the kindling verses, election of Hotā, invitation of the gods, Āghāras, and the election of priests.

The sacrifice proper begins after this with eleven Prayājas, the Yājyās corresponding to them being supplied by the Āprī-hymns varying in different priestly families.[19] After the tenth Prayāja the Svaru and one edge of the double-edged knife are anointed with butter and placed on the head of the sacrificial animal with the mantra *"ghṛtenā 'ktau paśuṃ trāyethām"* (Āp. 7. 14. 11) ! Then the Adhvaryu hands the weapon to the Śamitā (who has to separate the limbs of the sacrificed animal with it) with the words "may this edge be sharp for you" (Āp. 7. 14. 14). What the Śamitā actually does to kill the victim is to strangle it with a cord (Āp. 7. 16. 5) while everybody else looks away, the Yajamāna reciting the significant mantras "you are not actually dying, nor are you being injured, you are going to the gods by

19. According to Bergaigne quoted by Hillebrandt, *Ritualliteratur*, p. 16, these Āprī-hymns used at animal-sacrifices are the best proof of the previous existence of different sacrificial cults in different priestly families in the earliest period, though a persistent effort to rationalise them into a homogeneous system set in already before the oldest Brāhmaṇas.

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convenient routes ; where the virtuous and not the sinners go,—there the god Savitā may install you" (Āp. 7. 16. 7). Just before the animal is strangled it is touched (with the roasting spit) by the Pratiprasthātā, the latter by the Adhvaryu, and the Adhvaryu by the Yajamāna,—all standing in a row *(pipīlikavat)*, the purpose of the ceremony being clearly to communicate to the participators the magic substance concentrated in the victim.[20] The omentum of the victim is then taken out and roasted on a spit over the Śāmitra (i.e., the slaughterer's fire) and finally placed on the Uttaravedi. Now comes the eleventh Prayāja, after which the whole omentum, with butter poured over it, is sacrificed along with pieces of gold, while the Śamitā holds the opening, through which the omentum has been taken out of the victim's stomach, closed with his fist (Āp. 7. 19. 3). After a number of minor ceremonies immediately following, the various limbs and parts of the carcass (see Āp. 7. 22. 6) considered fit to be offered to the gods (*daivatāni avadānāni*, which may be compared to the *exta* of the victim sacrificed in Roman ritual; see Wissowa, *Op. cit.*, p. 352) are sacrificed in the proper order, the unclean parts being thrown into a pit west of the Śāmitra-fire outside the altar-ground as the share of the Rakṣases. Of the various ceremonies following this central feature of the sacrifice let us mention the eating of the Iḍā and the meat by the priests and the sacrificer, the eleven Anuyājas, the after-offering to the sacrificial grass *(prastara)*, the offering of the tail of the victim to the wives of the gods, the prayer imploring Varuṇa to forgive sin, etc.—The ritual literature knows also Naimittika and Kāmya animal-sacrifices performed on special occasions or for the attainment of special desires.[21]

Now we come to the Soma-sacrifices, which, in contrast to other sacrifices, are offered, not to particular gods, but to the whole body of divinities, as also in the Avesta (Oldenberg, p. 452). Historically considered, they should perhaps be regarded as the result of syncretism between the fire-cult, probably of Indo-European antiquity,[22] and the Soma-cult at least of Indo-Iranian age.[23] That the intoxicating Soma-juice should be the central element of these amazingly elaborate ritual ceremonies is natural enough. To the primitive Indo-Iranians its wondrous effect on body and mind could but appear to be the result of direct divine influence, and so to come into communion with the gods, what could appear to them more obvious than to partake of the

20. Cf. Oldenberg, *Op. cit.*, pp. 497 f.
21. See Hillebrandt, *Op. cit.*, § 67 (end).
22. Keith, *Religion and Philosophy*, Appendix E.
23. Caland-Henry, *L'Agniṣṭoma*, vol. II, p. 469.

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beverage which visibly produced that effect? The same motive explains also the drinking of wine at the Dionysian orgies of ancient Greece.

The basic form of all Soma-sacrifices is the Agniṣṭoma,[24] a sacrifice lasting one day only *(ekāha)* but requiring several days of preparation, and characterised by twelve Stotras and as many Śastras as mentioned above. The Ukthya is a modified form of the Agniṣṭoma, requiring at the evening-pressing not two Stotras and two Śastras as at the Agniṣṭoma, but five of each,—there being thus, fifteen Stotras and fifteen Śastras at the Ukthya ; the three additional Śastras are called Ukthāni,—whence the designation of the whole ceremony. The Ṣoḍaśin, in its turn, is a modified form of the Ukthya, its distinctive feature consisting of a sixteenth Stotra and a sixteenth Śastra. The other Ekāhas are the Atirātra (nocturnal vigil, twenty-nine Stotras and as many Śastras), the Aptoryāma (thirty-three Stotras and as many Śastras), the Atyagniṣṭoma (perhaps a special form of Ṣoḍaśin), and the Vājapeya which should have been in origin a popular festival in celebration of victory.[25] —"Ahīna" is the technical term signifying Soma-sacrifices lasting from two to twelve days, the longest Ahīna being thus the Dvādaśāha. Between the Ekāha and the Ahīna there is no difference excepting in duration, the latter being in fact a succession of Ekāhas variously modified and combined. The Aśvamedha is an Ahīna of three days.—The Dvādaśāha holds an intermediate position between Ahīnas and Sattras, i. e. sacrificial sessions of at least twelve days, but usually extending over one year : the Dvādaśāha may thus be performed both as an Ahīna and as a Sattra. A Mahāsattra is an extended Sattra of twelve years. The Ahīnas are performed by officiating priests in the interest of laic Yajamānas, but at the Sattras there is no room for Yajamānas as such, all the participating priests themselves being at the same time Yajamānas also, though one of them formally assumes the rôle played by the Yajamāna at the Ekāhas and Ahīnas. There is therefore no prospect of Dakṣiṇā at a Sattra.

The chief element of a Sattra is the Ṣaḍaha, a period of six days, of which tho varieties are known in the cult : the Pṛṣṭhya-ṣaḍaha, on each of the six days of which a different Sāman is chanted, and the Abhiplava-ṣaḍaha, at which the Sāmans Bṛhat and Rathantara are chanted on alternate days. A chain of Pṛṣṭhyas and Abhiplavas variously arranged, along with other elements, would cons-

24. Described in all its details by Caland-Henry, *Op. cit.* Oldenberg too, in his inimitable language, has given a brief but beautiful description of it (*Op. cit.*, pp. 457-9).

25. See Caland-Henry, *Op. cit.*, Préface, p. VIII.

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titute a year-long Sattra like the Gavāmayana, of which the second half-year is the exact replica of the first, but in the opposite order, so that the beginning of the second half is identical with the end of the first and the beginning of the first half is identical with the end of the second. Dividing these two symmetrical halves stands the Viṣuvat performed on the solstitial day. The whole session of Gavāmayana is concluded with the Mahāvrata which shows many highly interesting features of folk-festivals such as the dance of women in a ring round the fire with water-pitchers.[26]

Even Agniṣṭoma, the simplest of Soma-sacrifices, is so complex that it requires no less than two hundred and sixty separate ritual acts according to the enumeration of Caland-Henry. And each of these two hundred and sixty is by no means a simple ritual act,—some of them are in fact elaborate rituals by themselves ! The first of the ritual acts preparatory to Agniṣṭoma is of course Dīkṣā, of which the purpose is to chasten the mind and the body of the prospective sacrificer. The period of this chastening may vary from one day to one year. But the preparatory ceremonies with specific relation to the Agniṣṭoma are performed during the three Upasad-days immediately following the period of Dīkṣā, so that there would be altogether four preparatory days if the Dīkṣā is of one day only. The first Upasad-day is devoted chiefly to the purchase of King Soma. The mode of this purchase is very peculiar,—clearly suggesting a semi-ritualised form of an ancient Soma-myth. The vendor of Soma, a Kautsa or a Śūdra, should be actually beaten, and his goods taken away from him by force : later however he is given gold or a cow as price for his merchandise.[27] After the purchase, King Soma proceeds towards the sacrificial ground in his chariot while "the Subrahmaṇya utters the formula, whence he derives his name,"[28] inviting Indra to pratake of the Soma. The metaphor of royalty is maintained throughout the ritual. After the royal procession comes the royal reception and then the formal installation of the King on the throne. He is also entertained with an elaborate guest-offering *(ātithyeṣṭi)*. The ceremonies of the first Upasad-day, including two Pravargyas (milk-offerings) in the morning and afternoon[29] and two corresponding Upasads,[30] are concluded with a light meal *(vratana)* in the evening. The special feature of the second

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26. See Caland-Henry, *Op. cit.*, Préface ; Keith, *Op. cit.*, pp. 349-52.
27. For details of this ritual mimicry see Caland-Henry, § 34.
28. Keith, *Op. cit.*, p. 327.
29. See Keith, *Op. cit.*, pp. 332-3.
30. Caland-Henry, §§ 52 and 57.

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Upasad-day is the preparation of the Mahāvedi, the Uttaravedi, the Cātvāla and the Uttaranābhi. On the third Upasad-day, the second Pravargya and Upasad are performed at noon and not in the afternoon as on the previous two days, the evening being devoted chiefly to the offering of a goat to Agni and Soma (*agnīṣomīya paśu*).[31] The principal animal-sacrifice connected with the Agniṣṭoma (*savanīya paśu*) takes place on the great Sutya-day following immediately after the third Upasad-day, the Vapā being sacrificed at the morning-pressing, the Paśu-puroḍāśa at the midday-pressing, and the Aṅgāni at the evening-pressing.[32] Of the bewildering number of complex ceremonies performed on the Sutya-day round the three pressings, no adequate idea can be given within the space at our disposal. The Dakṣiṇās, consisting sometimes of "all the sacrificer's goods save his eldest son,"[33] have to be paid at the second pressing after the Nārāśaṃsa-cups have been deposited. The whole ritual is concluded, as usual, with an elaborate sacrificial ablution (*avabhṛtha*) after the evening-pressing.

The Agniṣṭoma is the model of numerous Ekāhas,[34] such as the Viśvajit, after performing which one has to pass twelve nights in different places,—three of these twelve among Niṣādas. The Sādyaḥkra, of which six varieties are mentioned, is essentially a simplified Agniṣṭoma, all the ceremonies connected with it, from Dīkṣā to Avabhṛtha, being performed in one day. Much more interesting are the four Vrātyastomas of which the object was formally to accept within the Aryan fold the non-Aryans or those Aryans who had forfeited their privileges through neglect of social duties (*patitasāvitrīkas*).[35] The most astounding of the Ekāhas is the Gosava for the attainment of cattle, after performing which one is expected to live like an animal for one year, completely disregarding all decencies of human life.[36] This is clearly a case of sympathetic magic.

The three greatest Śrauta-sacrifices, namely Rājasūya, Vājapeya and Aśvamedha, were all in origin popular festivals of political signi-

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31. On the occasion of this offering the Yajamāna and his relations, while touching each other, are covered with a piece of cloth (Āp. 11. 16. 13-15). This interesting ceremony clearly symbolises family solidarity.

32. See Caland-Henry, § 141. 15.

33. Keith, *Op. cit.*, p. 330.

34. Hillebrandt, *Ritualliteratur*, § 72.

35. Cf. the interesting description of Vrātyastoma in Keith, *Op. cit.*, pp. 337-8; also Haraprasad Sastri, *Absorption of the Vrātyas.*

36. Āp. XXII. 13. 2-3: *upa mātaram iyād, upa svasāram, upa sagotrām; yatra yatrai 'naṁ viṣṭhā vindet tad vitiṣṭheta.*

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ficance. The utterly non-religious and sometimes revolting character of some of the rites involved in them clearly suggest the culture of an age when Brahmanism, wisely pursuing a policy of compromise instead of trying to suppress outright the crude practices obtaining among the Aryan warriors and the aborigines of India, thought it better to throw over them the mantle of ritual sanctity. The Rājasūya[37] is a primitive coronation ceremony transformed into a Soma-sacrifice of one Sutya-day preceded by a year of preparation. The Purohita, the officers of state, the people and the King's son (whose name is once intentionally mispronounced for that of his father in the ritual !) take active part in the ceremony, of which the most interesting feature is the mimic expedition for booty in course of which the King defeats all his adversaries.—At the Vājayeya, which literally means the "drink of victory,"[38] the supremacy of the royal sacrificer is established in the same way by means of a chariot-race at which he beats his competitors.[39] —The Aśvamedha,[40] the famous horse-sacrifice of ancient Indian ritual, performed by princes desirous of extending their dominions, is of immemorial antiquity. It has been proved that the main features of the Aśvamedha appear in essentially the same form also in the horse-sacrifices not only of other Indo-European tribes,[41] but also in those of many non-Indo-European peoples.[42] The revolting practices mentioned in the ritual texts and also in literature in connection with the Aśvamedha were clearly a legacy of past barbarism which the Brahmins were cautious enough not to tamper with too hastily.

Human sacrifice (Puruṣamedha) too is mentioned in Indian ritual literature (see Hillebrandt, § 77), but it is significant that the Śatapatha Brāhmaṇa (vi. 2. 1. 39) gives the name of the man who was the last to actually immolate a human being at the Agnicayana instead of a surrogate victim, and the Puruṣamedha of the Śrauta-sūtras has been declared by Oldenberg (*op. cit.*, p. 362) to be the product of pure fantasy. Yet in view of the persistence of literary tradition about human sacrifices it would perhaps be going too far to altogether deny their existence in India in early times. If the highly cultured Athenian

37. For details see Hillebrandt, *Op. cit.*, § 74.

38. Oldenberg, *Op. cit.*, p. 470.

39. Hillebrandt, *Op. cit.*, § 73.

40. Described in detail by Dumont, *L'Açvamedha.*

41. See particularly W. Koppers, *Pferdeopfer und Pferdekult der Indogermanen* in *Wiener Beiträge zur Kulturgeschichte und Linguistik, Jahrgang* IV (1936), pp. 279-411.

42. See Bleichsteiner, *Rossweihe und Pferderennen im Totenkult der kaukasischen Völker* in *Op. cit.*, pp. 414-495.

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soldier-statesman Themistocles could have sacrificed three Persian princes at the battle of Salamis, it need not be surprising if it is discovered that some Indian princes too had on some occasions actually performed human sacrifice to placate the spirits or the people. According to Lecky, "the sacrifices of children to Saturn were very common" in the African province of the Roman Empire at the time of Constantine *(History of European Morals* [Issued for the Rationalist Press Association, Limited, 1911], vol. II, p. 14, col. 1). "The gentle vegetarian Porphyry knows that in Chios, according to tradition, there had been a Dionysos called Omadius, the Raw One, and that the sacrifice he used to exact was the tearing of a man to pieces" (Harrison, *op. cit.,* p. 484). In Rome, even apart from the gladiatorial combats which owed their origin to the Etruscan custom of immolating human victims at burial, human sacrifice became a part of the popular religion and is known to have been actually performed from before the second Punic War onwards (Wissowa, *Religion und Kultus der Römer,* p. 54).

It will be clear from this rapid survey of the principal Śrauta-sacrifices that they are composed of very heterogeneous elements. The two chief strains in them were doubtless the Indo-European fire-cult elaborated in India separately in the Ātharvanic ritual, and the Indo-Iranian Soma-cult[43] which, though later than the fire-cult in origin, attained supremacy over the latter, both in Iran and India, through the assiduous efforts of energetic priestly guilds. But Zarathustra, through his reforms, revived the languishing fire-cult in Iran, and, reinforced by Zarathuṣtrian ethics, it became the central feature of the Iranian religion. In India, however, the Soma-cult reigned supreme ever afterwards, the fire-cult being relegated to a subordinate position by the priestly families. Nevertheless, in Gṛhya-ritual, i. e. in the intimate life of the common people, the fire-cult maintained its own in spite of the priestly predilection for the cult of the exhilerating Soma.[44]

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43. which, according to Oldenberg, *Op. cit.,* p. 364, replaced an older honey-cult.

44. Can it be that the fire-cult was evolved by the Indo-European Daiva-worshippers and the Soma-cult by the Indo-Iranian Asura-worshippers ?

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MISCELLANEA

(1)

CONTACTS BETWEEN KAUṬILYA AND VĀTSYĀYANA.

Kauṭilya is concerned with the study of Artha as represented in political science, Vātsyāyana with the study of Kāma in the specialised form of Erotics. Each leaves the opposite field pretty well clear for the other but there are points of contact which

(a) give a peculiar force of meaning, which, but for this contact, might have been missed ;

(b) reveal a general identity of political and cultural background, though not necessarily therefore contemporaneity ;

(c) supplement from the Arthaśāstra certain ideas more relevant to Kāma which Vātsyāyana has not touched on or detailed.

This comparison may best start from a significant identity of expression noticed by Dr. Samasastry.[1] Why should Vātsyāyana state the Triad of "Artha Dharma Kāma" [2] with *Artha* first, an order neither logical nor appropriate to his theme, except as a reminiscence of the same words in the *same order,* which is here appropriate to the theme, in Kauṭilya's Arthaśāstra[3]. Especially when the significant words occur as part of a long and tedious discussion on the theme of Consequences and Doubtful Cases, the scheme of which is common to both works. At the risk of incompleteness I would avoid other comparisons already made by Dr. Samasastry, except to point out the special force which attaches to mention by Vātsyāyana of the **सूत्राध्यक्षः** Superintendent of Thread as an officer helpful in the Princess' love affairs[3a]:**विधवानाथाप्रव्रजिताभिः सह सूत्राध्यक्षस्य**। K. A. S. II 23 shows that the Superintendent of Thread was particularly concerned with women including widows (**प्रोषितविधवा**) to whom he issues yarn for piecemeal spinning. He is the one official for whom a fine is fixed for looking at a woman's face.

(At this point I would make two comments in parenthesis.

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1. P. 12—Translation K. A. S. Bangalore 1915, p. xii.
2. V. K. S. VI. vi 5.—Edn. Kashi Sanskrit Series, 1929.
3. K. A. S. IX—vii p. 361. Edn. Mysore Sanskrit Series, 37/54, 1919.

3a. V. K. S. V v. 8,

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a. Does **प्रव्रजिता** in K. A. S. really mean women with husbands abroad rather than the equivalent of **प्रोषिता** in V. K. S.?

b. The word **श्रङ्गुष्ठसंदंशनम्** at the end of this chapter in K. A. S. does not mean cutting off the thumbs as translated by Dr. Samasastry[4], but some kind of punishment or torture by squeezing them (e.g. Thumb Screw). The root **दंश्+सम्** is a word fairly frequent both in the Arthaśāstra and Kāmasūtra always with the sense of compression or close attachment; e. g. **संदंशवधः** as in K. A. S. IV xi is something quite different from mutilation **तदेवच्छेदयेत्।**)

The Arthaśāstra adds a good deal to the objective study of the *Veśyā* from the view point always of her civic position and status rather than that of her emotional problems, coquettery and intrigue, which interest Vātsyāyana; but there is one small but interesting point of comparison in the conception of woman as a kind of "saleable wares". Vātsyāyana thinks both of the eligible bride and of the Veśyā in this light. Both must expose themselves to view "because of their analogy with saleable wares" **पण्यसधर्मत्वात्।**[5]

Kauṭilya implies the same thought in listing among miscellaneous offences, that of visiting a prostitute engaged by some one else and buying goods bespoken by another.[6] (The Rūpajīvī, the term here used by Kauṭilya, is one of Vātsyāyana's nine types[7], but is presumably used more generally by Kauṭilya.) Another point of verbal identity may be mentioned in the reference to the "Courtesan's daughter" **गणिकादुहित्र** whom Ghoṭakamukha classed with servant-maids, as a seventh alternative for a suitor's attention[8], and an offence against whom Kauṭilya penalises just before a similar offence against a Dāsī[9]. Not to dwell longer, however, on verbal coincidences it may be said that Kauṭilya alone is concerned with the position of the Prostitutes as a definite (and revenue making) element in the State as in his chapter on the Superintendent of Prostitutes, an aspect of no interest to Vātsyāyana. Both writers recognise their position in the Royal Quarters. Kauṭilya assigns the quarters S. W. by South to the Rupājīvī, Tālāpacāra and Vaiśya (petty traders, a word for which in the

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4. Op. cit.
5. V. K. S. III i. 16. VI i. 7.
6. K. A. S. III 20 page 198.
7. V. K. S. VI vi. 54.
8. V. K. S. I v. 24.
9. K. A. S. IV 12 page 232.

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context one would be inclined to substitute Vēśyā were it not for the preceding **पक्वान्नसुरामांसण्याः**[10]; once more the Rūpājīvī is associated with saleable commodities); while Vātsyāyana mentions the Veśyā only with the dancing girl in the afternoon visits of the Prince to the Women's Quarters[11] : **ततो वेश्या आभ्यन्तरिका नाटकीयाश्च ।**

There is not really much in common between the two writers in the discussion of the domestic life of Princes and the Nobility. Kauṭilya has a good deal to say about the lay-out and routine of the women's quarters, while Vātsyāyana is more concerned with psychological study of the wife's conduct as single wife, or in reaction to co-wives, with the erotic adventures of the prince, and with the escapades of strangers in the women's quarters. Kauṭilya, for instance, has no place for the repulsive local customs in which Vātsyāyana revels[12]. There is, however, a specific contact in the conception of the "Subhagā", the favourite wife. This lady styled **राजमहिषीसुभगा** or **सुभगा** becomes in the Arthaśāstra an unwilling instrument for poisoning the King in an attempt to recover favour.[13] Vātsyāyana uses the word as a flattering form of address, but also precisely in Kauṭilya's technical sense of favourite wife when speaking of a typical zenana intrigue[14] **भूतपूर्वसुभगया प्रोत्साह्य कलहयेत्** "Set on a former favourite to start a quarrel with her".

It would be interesting to examine at length Kauṭilya's very ample treatment of the possibilities of womankind as spy and vamp, consciously and unconsciously employed, but space forbids. Suffice to say that she will be found in the Arthaśāstra fulfilling all the functions of the female in a modern thriller, whether as a lure to destruction, as the creator of jealousy, or as the actual murderer, usually by poison (**रसदा**)। Vātsyāyana is familiar with her at least in the latter capacity, e.g. in V. K. S. I v 20, where he outlines in a few words the plot of the lover seducing the wife in order that she may poison his enemy, her husband's friend !

Finally one may mention allusions in Vātsyāyana to the Arthaśāstra rather by way of parody than of substantial contacts, such as the description of the Viṭa, Pīṭhamarda and Vidūṣaka as the "Ministers" of

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10. K. A. S. II iv.
11. V. K. S. IV ii 78.
12. V. K. S. V v 32 ff.
13. K. A. S. XII 2.
14. V. K. S. IV ii 17.

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Prostitutes and their lovers in affairs of peace and war[15]. For the full appreciation of this one must remember that the former two types are as regular attendants on the Courtesan as is the Vidūṣaka on the lover, as Vātsyāyana himself makes clear. Kālidāsa has no use for the two former less pleasant characters, but the Viṭa is well established in the Courtesan's house in Śūdraka's Mṛcchakaṭika. Similar is the use of the term संधिः for reconciliation after a lovers' quarrel, and we have the conception of lovers who like foreign states are संधेय or असंधेय[17] fit to treat with or not. While the repentant offender at a woman's feet may be regarded as going to extremes in the policy of Sāma (conciliation)[17] : युक्तरूपेण साम्ना पादपतनेन वा ।

This appears to be the only clear hint in Vātsyāyana's Art of Love of the parallelism between love and war which was elaborated by the Roman poet, Ovid, and through this medium became part of the stock-in-trade of Western literature : *"Militat omnis amans"* "Every lover is at war."

C. W. GURNER.

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15. V. K. S. I iv 47.
16. V. K. S. IV ii 23 & VI iv 28.
17. V. K. S. VI iv I & VI iv 10.
18. V. K. S. II x 42.

(2)

A NOTE ON THE BASIM COPPER-PLATE INSCRIPTION OF VĀKĀṬAKA VINDHYAŚAKTI II.

It is known to scholars who have read the *Proceedings of the Indian History Congress,* 1939 (pp. x-xi) and *Ind. Hist. Quart.,* March, 1940 (pp. 182-86) that the author of the present note was the first man to make the following suggestions regarding the Basim copper-plate inscription :

(1) that Pravarasena, grandfather of Vindhyaśakti of the Basim grant, is the same as Pravarasena I who was the grandfather of Rudrasena I Vākāṭaka and is known from such records as those of Prayarasena II ; and

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(2) that Vindhyaśakti of the Basim grant is not identical with Vindhyaśakti the celebrated founder of the Vākāṭaka dynasty, but that the former was actually the latter's great-grandson.

MM. Prof. V. V. Mirashi was not at first agreeable to these suggestions.[1] It is therefore a matter of satisfaction to me that the above conclusions of mine have been accepted by Prof. Mirashi and Mr. D. B. Mahajan in their paper on the Basim copper-plate inscription recently published in the *Epigraphia Indica*[2], inspite however of the fact that the learned writers have given me no credit for them. In the present note I shall discuss only one or two observations contained in the above paper of Prof. Mirashi and Mr. Mahajan.

As regards the epithet *dharmma-mahārāja* used in the Basim inscription (lines 1 and 4), it has been observed :[3] "The repetition may however be attributed to the carelessness of the drafter of the record." In my opinion the suggestion is highly improbable. I have absolutely no doubt that any Sanskritist to whom a passage like *dharmma-mahārājasya śrī-pravarasena-pautrasya dharmma-mahārājasya śrī-sarvvasena-putrasya dharmma-mahārājasya śrī-vindhyaśakter = vacanāt* may be placed for examination would at once notice two clear cases of the *sāpekṣa samāsa* in the expressions *śrī-pravarasena-pautrasya* and *śrī sarvvasena-putrasya*. The charge of committing such a foolish mistake of repeating an epithet not even twice but for as many as three times seems to be unjust when levelled against a scribe who is reliable as regards the rest of the record. Prof. Mirashi and M. Mahajan have apparently ignored the fact that the *sāpekṣa samāsa is often used in early epigraphic literature, especially in the genealogical portion.* A few instances may be cited :—

(1) Legend on some coins of Rudradāman : rājño kṣatrapasa jayadāma-putrasa rājño mahākṣatrapasa rudradāmasa.[4]

(2) Gundā inscription of Rudrasiṃha I : rājño mahākṣatrapasya svāmi-caṣṭana-prapautrasya rājño kṣatrapasya svāmi-jayadāma-pautrasya rājño mahākṣatrapasya svāmi-rudradāma-putrasya rājño kṣatrapasya svāmi-rudrasīhasya.[5]

(3) Junāgarh fragmentary inscription of Rudrasiṃha I : caṣṭanasya prapautrasya rājñaḥ kṣatrapasya svāmi-jayadāma-pautrasya rājño mahākṣatrapasya . . .[6]

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1. *Proc. Ind. Hist. Cong.*, loc. cit.
2. Vol. XXVI, pp. 137 ff.
3. *Ibid*, p. 141, n. 3.
4. Rapson, *Catalogue of the Indian Coins in the British Museum*, p. 78.
5. *Ep. Ind.*, Vol. XVI, p. 235.
6. *Ibid*, p. 241.

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(4) Garhā inscription of Rudrasena I : rājño mahākṣatrapasa bhadramukhasa svāmi-caṣṭana-putrapautrasya rājño kṣatrapasa svāmi-jayadāma-putrapautrasya rājño mahākṣatrapasya bhadramukhasya svāmi-rudradāma-pautrasya rājño mahākṣatrapasya bhadramukha- sya svāmi-rudrasiṃha-putrasya rājño mahākṣatrapasya svāmi-rudrasenasya.[7]

(5) Bilsaḍ pillar inscription of Kumāra Gupta I : mahārājādhirāja-śrī-candragupta-puttrasya..... mahārājādhirāja-śrī-samudragupta-putrasya mahādevyām utpannasya..... mahārājādhirāja-śrī-candragupta-puttrasya... mahārājādhirāja-śrī-kumāraguptasya.[8]

My reading and interpretation of the Basim record differ in some respects from those of Prof. Mirashi and Mr. Mahajan. For them I may only refer readers to *Ind. Hist. Quart.*, March, 1941, pp. 110-16 and also to my *Select Inscriptions,* Calcutta, 1942, pp. 406-11. It is however gratifying for me to note that the reading *śāsana-vādam = pamāṇa* (line 25) suggested by Dr. B. C. Chhabra is exactly the reading published in my transcript.

In conclusion, I may point out that the supposition "that the Vākāṭakas had their original home in the South"[9] is wholly unjustifiable based as it is on wrong premises. There is absolutely no resemblance between the phraseology of the Vākāṭaka and that of the Pallava charters. The same remark also applies to the section of the *parihāras* which apparently developed, both in the Vākāṭaka and the Pallava grants, from the exemptions prevalent in Śātavāhana age and noticed in Śātavāhana charters. It should be remembered that the Vākāṭakas and the Pallavas were both successors of the Śātavāhanas. As regards the name Vākāṭaka in an inscription at Amarāvatī in the Andhra country, it is apparently a personal name and has absolutely nothing to do with the Vākāṭaka ruling family.[10]

DINES CHANDRA SIRCAR.

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7. *Ibid,* p. 238.
8. *Corp. Ins. Ind.,* III, p. 43.
9. *Ep. Ind.,* XXVI, pp. 149-50.
10. The fact that comments and controversies are usually not published in the *Epigraphia Indica* no doubt encourages some of its contributors to become uncommunicative about their indebtedness to others. In *Ep. Ind.,* XXV, while editing a Śālaṅkāyana inscription, Mr. R. S. Panchamukhi tries at some length to prove that there was no king named Buddhavarman in the genealogy of the Śālaṅkāyanas. It is curious that his arguments are all to be found in a note entitled *Genealogy of the Śālaṅkāyanas,* published in *Ind. Hist. Quart.,* March, 1933 and reprinted in the *Journ. Dep. Let.* (C. U.), XXVI, 1935, and in the *Successors of the Sātavāhanas,* C. U., 1939.

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(3)

CHATURVEDI ON DRĀVIḌAPRĀṆĀYĀMA.

Mr. S. P. Chaturvedi in criticising my article "Pūrvācāryas in Pāṇini" which appeard in the D. R. Bhandarkar Volume (1941) has accused me of Drāviḍaprāṇāyāma (Nagpur University Journal, Dec. 1941, No. 7, p. 49). What I wanted chiefly to prove in my article is this :—"When Pāṇini mentions a Pūrvācārya at the end of an aphorism he means exactly what he says, namely that the particular view of the Pūrvācārya is not shared by him, even though the forms concerned mgiht not be unknown in the language" (D. R. Bhandarkar Volume, p. 21). Regarding the evidence I adduced to prove my point Mr. Chaturvedi now makes this flattering observation :—"this evidence is no doubt conclusive and very ably put forth" (loc. cit.). Yet he cannot help accusing me of having practised Drāviḍaprāṇāyāma, for, in his opinion, this point can be proved simply by a reference to Sūtras like VI. 1. 92 *(vā supy Āpiśaleḥ)* in which Pāṇini mentions a Pūrvācārya and also uses the particle *vā*. But after the evidence adduced by me, "which is no doubt conclusive" in the opinion of Mr. Chaturvedi himself, Pāṇ. VI. 1. 92 can be taken only to mean "facultatively, when *sup* follows, in the opinion of Āpiśali." Neither *vā* nor *Āpiśaleḥ* is redundant in this Sūtra if the principle of interpretation proposed by me and accepted by Mr. Chaturvedi is adhered to. Pāṇini here is simply saying that the rule concerned is facultative in the opinion of Āpiśali. How can the Sūtra *conclusively* prove that the view of the Pūrvācārya is not shared by Pāṇini? Only those who unlike Mr. Chaturvedi do not accept my theory that the purpose of mentioning a Pūrvācārya is not merely to make the rule concerned non-obligatory might be tempted to read into this Sūtra something very special. But not Mr. Chaturvedi, unless he revises his own view and rejects my theory. This Sūtra and its likes can at the best suggest but never *prove* my point. Indeed, I am yet unconvinced that my point can at all be proved without the help of what Mr. Chaturvedi has been pleased to call Drāviḍaprāṇāyāma.

I have always maintained that "whenever Pāṇini specifically mentions a Pūrvācārya for his views on particular grammatical problems the revered one is mentioned at the end of the sūtra concerned" (D. R. Bhandarkar Volume, p. 21). I still maintain this view, but Mr. Chaturvedi's criticism has convinced me that I should have put in Italics the word *for* in this sentence. When Pāṇini in III. 4. 111 quotes Śākaṭāyana it is not *for* his wholly discordant view. Rather it seems to me that Pāṇini here intends to express his disapproval of the Śākaṭāyanīya

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forms *ayuḥ* etc. by clearly suggesting that they are accepted by no other grammarian. Properly speaking, the Sūtra is *against* the Pūrvācārya, not *for* him. Hence this Sūtra cannot be put in the same category with the Sūtras containing views which Pāṇini at least tolerates without fully approving, i. e. the Sūtras in which the Pūrvācārya is mentioned last.

As for Drāviḍaprāṇāyāma, may I suggest at the end that even plain walking may seem to be a feat of gymnastics to those who even in mature years would insist on being trundled about by censorious nannies in cosy perambulators rather than trust their own legs ?

BATAKRISHNA GHOSH.

(4)

EXCAVATION OF PREHISTORIC SITE IN GUJARAT.

The Gujarati vernacular paper *Prajabandhu* of 28. 12. 41 makes the following announcement :—

"Gujarat Prehistoric Expedition made certain archaeological discoveries on the 8th December in the bed of the Sabarmati. Some of the chief workers were Dr. B. K. Chatterji, Dr. H. D. Sankalia, V. B. Krishnaswami and Amritalall V. Pandeya. The above group of workers achieved extraordinary success in this enterprise. In the course of excavation they discovered hundreds of artifacts and various other objects of the Stone Age (of about fifty thousand years ago). These finds are of immense value. They were exhibited at the Indian Science Congress between the 2nd and the 4th January. The excavation established beyond doubt the great antiquity of the province of Sabarmati. It is to be hoped that the Archaeological Department of the Government of India will undertake further excavations here in cooperation with other scientific bodies."

We are informed by Dr. B. K. Chatterji that the implementiferous older alluvial conglomerate beds as well as microlithic sites adjoining the Sabarmati valley discovered by him and excavated by him and his colleagues yielded palaeolithic hand-axes, choppers, scrapers of Abbévillian and Acheulian types, and microliths of the types of lunette, point, scraper, blade etc., as well as fossil-bones. Further we learn from Dr. B. K. Chatterji that the same types of implementiferous beds have been discovered by him in the Worsang valley.

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(5)

PĀRIṂDA IN THE INSCRIPTIONS OF AŚOKA.

The expression *aṃdhra-palideṣu* (Shāhbāzgarhī), °*pāriṃdesu* (Girnār), °*pāladeṣu* (Kālsī) occurs in Rock Edict XIII of Aśoka. As the Pulindas are associated with the Andhras in ancient Indian tradition (*Aitareya-Br.*, VII, 18), it was originally admitted by scholars that *palida, pālada, pāriṃda* is no other than the word *pulinda* in Sanskrit. It is of course clear from the form *pāriṃda* that the actually intended form of *palida, pālada* is **pāliṃda* with vowel-mark and *anusvāra* neglected. But as the philological relation of *pāliṃda, pāriṃda* with Sanskrit *pulinda, paulinda* is not quite apparent, doubts have recently been expressed as regards the identification of the Pāriṃdas or Pāliṃdas with the Pulindas (Hultzsch, *C. I. I*, I, p. 48 n). Some scholars think in this connection of the Pāradas of the Purāṇas (Raychaudhuri, *P. A. H.I.*, 1938, p. 259) ; but, though *pārada* can be equated with the incomplete form *pālada*, the equation *pārada* = *pāriṃda*, **pāliṃda* would be rather unconvincing from the philological point of view. Sometimes the Pāriṃdas are even identified with the Vārendras, people of Varendra or North Bengal (Bhandarkar, *Aśoka*, 1932, pp. 36-37). This suggestion is also unsatisfactory, as the Andhras are not known to have had anything to do with Varendra or the Vārendras and as the name Varendra (which is unknown to Epic and Puranic geography and cannot be traced in any early work or record) is met with in literature about *fourteen centuries after Aśoka*. It is therefore desirable to examine the philological objections to see if the Pāriṃdas or *Pāliṃdas can really be identified with the Pulindas or Paulindas who are traditionally associated with the Andhras or Āndhras.

The objections to the equation *pāriṃda, *pāliṃda* = *pulinda, paulinda*, on grounds of philology, are only two : (1) the change of the vowel *u* or *au* of *p* to *ā* ; (2) the change of *l* of *li* to *r*. The nature of the difficulties does not however appear to be quite insurmountable.

(1) The change of *au* to *ā* is noticed in Pāli and Prakrit, *e.g.*, in the word *gārava* = Sanskrit *gaurava*, which also occurs in Aśoka's Bairāṭ-Bhābrū inscription, l. 2, under the form *gālava*. The change of *paulinda* to *pālinda* is therefore not impossible. It may however be noted that this change of *au* to *ā* is essentially due to the change of *u* to *a* (*e.g. guru* = *garu* directly from which *gārava* by the ordinary rule of *vṛddhi*), instances of which are abundant in Pāli, Prakrit and epigraphic literature ; cf. *mukula* = *makula, sphurati* = *pharati, mukuṭa* = *maüḍa, yudhiṣṭhira* = *jahiṭṭhila, gurvī* = *garuī, upari* = *avari*, etc. See V. Bhattacharya, *Pāliprakāśa*, p. 5 n, pp. 53-54 and n ;

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Vararuci, *Prākṛtaprakāśa*, I, 21 and 43. It therefore seems that *pulinda* was changed to *palinda* in Prakrit from which was derived by *vṛddhi* the form *pālinda*.

(2) There are some instances of the change of *l* to *r* in the Standard Prakrit called Māhārāṣṭrī by later grammarians; e. g., *kila* = *kira*, *sthūla* = *thora*. See Vararuci, IX, 5; Hemacandra, I, 124, 255, II, 99. The change is abundantly illustrated by the songs of Vidyāpati (14th-15th century) representing a dialect of North Bihar; e. g., *añcala* = *ā̃cara*, *cañcala* = *cā̃cara*, *kajjala* = *kājala* = *kājara*, *velā* = *-veri*, etc. According to later Prakrit grammarians, such as Rāma Śarman (17th century), *r* becomes *l* and *l* becomes *r* in Pāñcāla-Paiśācika, while either *r* or *l* may be used for *r* or *l* in Gauḍa-Paiśācika (*Sir A. Mookerjee S. J. Vol.*, Orientalia, II, p. 137). It should not however be thought that the change of *l* to *r* is a late development, as it is actually noticed in very early records; cf., *e. g.*, *thorasisi* = Sanskrit *sthaulaśīrṣin* in the Bhaṭṭiprolu casket inscriptions (casket No. 2, l. 4 on the centre of the lid) belonging to the second century B. C. i. e. to a period not much later than that of the records of Aśoka. *Pārimda* as an alternate Prakrit form of *pālimda* is thus not impossible.

DINES CHANDRA SIRCAR.

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REVIEWS

THE DEVELOPMENT OF HINDU ICONOGRAPHY By Dr. Jitendra Nath Banerjea, M.A., Ph.D., Lecturer in the Departments of Ancient Indian History and Culture, Pali and Sanskrit, Calcutta University, 1941, Royal 8vo.

If this be taken as a sample of Doctorate thesis, it cannot but speak eloquently of the high standard of research work produced by the teachers and alumni of the University of Calcutta. This is indeed a remarkable publication on the subject, which represents a distinct landmark in the history of successive attempts made by several capable writers to unveil the secrets of Hindu iconography since the memorable publication of Gopinath Rao's *Elements of Hindu Iconography*. The last is not necessarily the best. But Dr. Banerjea's is certainly the best work in the field, at least in the sense that here we have a very fruitful result of earnest efforts solely directed to visualising the process of development of Hindu iconography on solid archaeological data. Dr. Banerjea's strongest point is his intimate knowledge of Indian coins and seals and basreliefs, which he has fully utilised in three chapters, Chs. III-V. His first-hand knowledge of Sanskrit texts has enabled him to deal with highly technical canons of iconometry with rare mastery.

He has with consummate skill enhanced the value of his work by critically examining the evidences bearing on the much disputed problem of antiquity of image-worship in India in Ch. II and by carefully analysing the factors that contributed to the development of iconoplastic art in India in Ch. VI. Though the field surveyed is very wide, he guides us rationally to view things as they are and as they shaped themselves through ages. And his findings on all the controversial points would seem sound and acceptable.

If I have understood him aright, in his opinion the Vedic hymns are far from proving the worship of the gods and goddesses in their iconic forms by the cultural section of the Indo-Aryan community. At the same time the evidence of these hymns is insufficient for determining what was prevalent among the mass of Indian people. The *devāyatanas, devālayas* or *devagṛhas* ("god's abode", "temples"), mentioned in the Gṛhyasūtras, find mention also in the oldest portion of the Pali Canon, particularly in connection with the building of a new city. But the impression created is as if the *devatās* or benevolent spirits were waiting to take their respective abodes, there being no definite suggestion as to the installation of images in those temples. The same impression is created by the Mahāsamaya Suttanta which offers us a formidable list of gods and goddesses worshipped by the people of India. The *Caityas* mentioned were no more than haunted trees, haunted woodlands, haunted pleasances. By the word *manussaviggaha* (Pātimokkha) and *vimba* is meant a living bodily form, and not an

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image. While speaking of *śilpa* or art, the Aitareya Brāhmaṇa (VI. 1) mentions the toy elephants, horses and chariots (*hasti-aśva-ratha*) made in imitation of natural objects (*devaśilpānām anukṛtiḥ*), but does not mention any sensible representation of deities. Even Aśoka's edicts, while speaking of popular religious demonstrations of his time, expressly mention the symbolical representations of the gods by means of celestial mansions, elephants and masses of fire. And yet it is too much to assume that the Buddhists were the first to carve the figures of the various gods and demi-gods in stone without having any concrete models before them. I may particularly refer to the soldier-like figuration of the sun at Bharhut which, according to Varāhamihira, was the Udīcya or North-western mode of sensible representation of the sun. In the later representations, the soldier-like figure of the god is placed in one-wheeled chariots drawn each by seven horses. The poetic description of the sun moving in chariots drawn by odd numbers of horses is in the Vedic hymns. Thus we get in later representations a combination of a concrete figure of the sun with appurtenances supplied by Vedic poetry. The Bharhut Stūpa railing exhibits several conventional representations of Śrī, Sun, Moon, etc. The eldest of the figurines of Yakṣas and Devatās are Egyptian in shape and form. Dr. Banerjea does not dismiss the evidence of the statues found at Mohen-jo-daro on the ground of the default of inscriptions to tell us what they stand for. It is true that the Vedic poets and Upaniṣadic thinkers delineated and conceived the gods in terms of abstract qualities. But there must have existed side by side in the country concrete representations of them either in stone, or in clay, or on the canvas. The Bharhut sculptures serve as a meeting place of the two processes of development, namely, that of concrete representation and that of poetic personification. The evidence of Pāṇini cited by Dr. Banerjea is conclusive as to the existence of the iconic representations of the popular deities. I may draw the author's attention to the evidence of the Pali Vinaya Piṭaka proving beyond doubt the existence of figurines of goddesses curved in wood (*dāru-dhitalikā*) as well as drawn in plaster painting (*lepacitta*).

But in the work before us we have a very fair and dispassionate account of facts relating to Hindu iconography as well as a critical estimate of views and evidences relied upon. The author has offered his own suggestions for consideration. And he must be congratulated upon a brilliant execution of the task he set himself to accomplish.

B. M. Barua.

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EARLY HISTORY OF THE VAIṢṆAVA FAITH AND MOVEMENT IN BENGAL from Sanskrit and Bengali sources, by Sushil Kumar De, M.A. (Calcutta), D.Lit. (London), Professor and Head of the Department of Sanskrit, Uunversity of Dacca; pp. iv+535; Calcutta, 1942.

This is a great book destined to be treasured for years to come as the best exposition of Bengal Vaiṣṇavism. It easily outshines all that has been hitherto written on the subject in Bengali and English. There is already a spate of books and monographs on Bengal Vaiṣṇavism both by Indians and Europeans. But most of the Indian authors, to all appearance, were devout Vaiṣṇavas, to whom it would be simply plunging headlong into hell-fire to approach the subject in a spirit of criticism; to the European writers, on the other hand, Bengal Vaiṣṇavism appeared to be nothing but an "emasculated ritual of emotional debauchery" (p. 420). From the works of none of these authors is it apparent, however, that they had actually trudged their way through the voluminous writings of the Vṛndāvana Gosvāmins with the necessary meticulous circumspection and understanding as just Dr. De has done. The detailed analysis of the whole canoncial literature of Bengal Vaiṣṇavism contained in this volume is naturally the most valuable part of it, in perusing which everyone will surely be moved to admire the infinite skill and tact displayed by the author in presenting his highly sensuous material in a wonderfully balanced and elegant English, maintaining throughout an attitude of almost stoical ataraxy which may seem sinister to many a devout heart appalled by this unfamiliar, though by no means unsympathetic, spirit of objective inquiry.

Dr. De has definitely rejected the theory that Bengal Vaiṣṇavism is of Mādhva inspiration, though he does not deny the possibility of Mādhva influence. All the forces—or rather the absence thereof—necessary for the emergence of an anti-intellectual emotional religion were indeed present in Bengal about the time of the advent of Caitanya. The country had sunk to the lowest depth of political ignominy; its government was in the hands of savage Abyssinian slaves whose lustful oppression and plunderings were limited only by their own lack of intelligence. The weak and emasculated people of the country could not even think of creative joy; they were thirsting for diversion from action to emotion. So they fell *en masse* for artificial emotion, namely Tāntric orgy and Vaiṣṇava ecstasy, in both of which the ultimate appeal is to the most primitive instinct which man shares with all the other animals. In similar critical periods of complete national frustration similar unnatural cults of "naturalism" are known to have emerged also among other peoples: We have only to remember the Russian Khlysty described by Fülöp-Miller (*The Mind and Face of Bolshevism*, pp. 82-4) and Diderot's Otaïti dangled before the French public on the eve of the great Revolution of which Taine has left us this edifying picture: "La pudeur, comme le vêtement, est une invention et une convention; il n'y a de bonheur et des moeurs que dans les pays où *la loi autorise l'instinct*,

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à Otaïti, par exemple, où le mariage dure un moins, souvent un jour, parfois un quart d'heure, où l'on se prend et l'on se quitte à volonté, où, par hospitalité, le soir, on offre ses filles et sa femme à son hôte, où le fils épouse la mère par politesse, où l'union des sexes est une fête religieuse que l'on célèbre en public" (*L'Ancien Régime,* treizième édition, p. 285). In Bengal too, as in Otaïti, the people wanted a religion that would invest instinct with all authority and supersede the deductions of reason by the intuitions of ecstasy. This was supplied by Caitanya who, therefore, was at once hailed as a prophet. But a prophet is after all what his apostles make of him. The secret of the tremendous success of Caitanyaism is to be looked for not so much in the mystic visions of a young enthusiast of supernormal emotional capacity as in the patient and systematic theological writings of the early Church fathers of the religion. Like every enthusiast, Caitanya inflamed everything but discovered nothing. But he inflamed, among others, Rūpa and Sanātana and their nephew Jīva. All of them were astute theologians trained in the scholastic methods of traditional philosophy, and they also knew where lay the chief weakness of that philosophy : it lay, namely, in the recognition accorded to revealed texts as a valid means of knowledge. The Śrīmadbhāgavata being the Bible and Koran of the Vaiṣṇavas, nobody could reasonably expect them to deny the status of Śruti to the Purāṇas, and that point once gained what was there on earth that could not be proved to be in conformity with Śruti-pramāṇa ? The Vaiṣṇava philosophers threw overboard all the other Pramāṇas, not excluding Pratyakṣa and Anumāna, which had survived, though in a severely attenuated form, the hurricane of devastating Buddhist criticism. But logic, thus disgraced at the hands of the Vaiṣṇavas, had ample revenge on its devout violators, when through anxiety not to overstep the boundary of empirical reason in their split-hair analysis of mind and spirit they had to accept without professing—and apply to noble purpose—all the canons of traditional logic they had unceremoniously rejected at the start : this is at least the impression a careful student will gather from a perusal of the two difficult chapters "The Devotional Sentiments" and "Theology and Philosophy" in the book under review, on the publication of which we extend our heartiest congratulations to its erudite autho

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INTRODUCTION TO ARDHAMĀGADHĪ by A. M. Ghatage, M.A., Ph.D., Rajaram College, Kolhapur ; pp. xii+253 ; Kolhapur 1941.

This is an extremely well-written book which every student of Prākrit, specially if a beginner, should make it a point to read. In the chapters on

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phonology the author has dealt with his dialect from the view-point of historical grammar, though his treatment of morphology and syntax is modestly descriptive. The whole book is very closely written, so that it would be difficult to point out any superfluous words or sentences in it. In the phonology portion the author has almost on every page touched unsolved knotty problems which he perhaps should have avoided, for, evidently due to lack of space, he could not do justice to them. It is rather surprising that the various phenomena of the Morengesetz ("law of moric quantity" rather than "law of metrical length" as the author puts it) have been dispersed under different heads; from the manner in which the relevant material has been presented a student will hardly be able to understand that *vāsa* (= *varṣa*) and *vaṅka* (= *vakra*) are the results of essentially the same tendency. By the way, it is rather hazardous to assume that *aśva* at first changed to *assa* and then to *āsa* (p. 68). Strange cases like Pāli *niḍḍa* (= *nīḍa*) and Prākrit *kiḍḍā* (= *krīḍā*) render doubtful what otherwise would certainly have been regarded as the normal course of mutation. Regarding *suṇaha* (p. 14), it should have been mentioned at least that Geiger (*Pāli Literatur und Sprache*, § 40. 1 b) derives it from *śunaka*. In § 15 the author suggests that short *e* and *o* are unknown in Sanskrit. But they are quite common in the Vedic language, and I have noted not a few cases of short *e* and *o* in the language of the Mahābhārata.

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INTRODUCTION TO INDIAN TEXTUAL CRITICISM by S. M. Katre, M.A., Ph.D. (London), Professor of Indo-European Philology, Deccan College Post-Graduate and Research Institute, Poona, Editor, New Indian Antiquary; with Appendix II by P. K. Gode, M.A., Curator, Bhandarkar Oriental Research Institute, Poona, Joint-Editor, New Indian Antiquary; Karnatak Publishing House, Bombay; pp. xiii+148.

This little book will certainly prove useful to scholars engaged in editing texts directly from manuscripts. Dr. Katre has given here a lucid exposition of the technique evolved by Dr. Sukthankar and his collaborators, and he has also drawn upon the relevant sections in the Companions of Greek and Latin Studies and works on higher textual criticism like Birt's *Kritik und Hermeneutik* in Iwan Müller's *Handbuch der Altertumswissenschaft*. His book would have further gained in value if he had not ignored Esteller's *Die Älteste Rezension des Mahānāṭakam* (Abhandlungen für die Kunde des Morgenlandes XXI, 7; Leipzig 1936) which is certainly one of the most remarkable works we have to date on Indian textual criticism. When speaking of the value of Purāṇic ver-

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sions of standard works (p. 34) the author should have at least mentioned the interesting results attained by Losch in his *Die Yājñavalkyasmṛti verglichen mit den Parallelen des Agni- und Garuḍapurāṇa* (Bonn 1927). As for *Śākuntala*, are we to understand that the Padmapurāṇa-version of the story was drawn upon by Kālidāsa? In spite of Winternitz and Haradatta Śarmā this is not correct. As K. C. Chattopadhyaya has convincingly demonstrated, "a careful study of the Śakuntalā story in the *Padmapurāṇa* forces us to the conclusion that the Purāṇa knew Kālidāsa's drama very intimately" (*The Allahabad University Magazine*, 1938, p. 409). It is rather surprising that the author applying Sukthankar's methods could not arrive at this unequivocal conclusion.—I am not sure that it is advisable under any circumstances to rely on the Kāvya-writers for textual criticism of the epics; Kālidāsa's amazing errors in dealing with the Rāmāyaṇa-story (cf., for instance, Mallinātha's comments on Raghuv. VI. 48, where he points out that the statement about Mathurā contained in this passage is contradicted by the poet's own statement in Raghuv. XV. 28) are not at all inspiring of confidence. Besides, how shall we know that the classical writers had not themselves fallen victim to the corrupt text-tradition of the Epics? These questions have been discussed threadbare in the literature on Homer-criticism which Dr. Katre has completely ignored. The dangers encountered in attempting to emend Homer in the light of quotations in Plato and other classical writers are too well known.—In connection with what the author says on p. 4 about the knowledge of writing in Ancient India, I would like to remind him that the original purpose to which the art of writing was applied in ancient civilisations was to conceal knowledge, not to reveal it (see Gilbert Murray, *The Rise of the Greek Epic*, second edition, pp. 117-8).—One aspect of manuscript-tradition seems to have escaped the author: highly respectable grammatical forms are known to have arisen in languages simply through the bizarrerie of manuscript-tradition; cf., e. g. the genitive ending *-īī* for *-ī* in Latin (see Sommer, *Handbuch der Lateinischen Laut- und Formenlehre*, zweite und dritte Auflage, p. 376).—*Tantrākhyāyika* has been thrice misspelt *°kā* on p. 44.

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SELECT INSCRIPTIONS BEARING ON INDIAN HISTORY AND CIVILIZATION, Volume I, From the Sixth Century B. C. to the Sixth Century A.D., Edited by Dines Chandra Sircar M.A., Ph.D., pp. xli+530; With 56 Plates; Published by the University of Calcutta, 1942.

Dr. Sircar, though one of the younger scholars of the Calcutta University, has already established an international reputation by his amazingly varied and

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valuable publications on different branches of Indian History and Epigraphy. His reputation will be further enhanced by this book, the value of which must not be minimised only because the inscriptions contained in it had been published before. Altogether two hundred and forty-two inscriptions, large and small, with brief explanatory notes, and Sanskrit chāyā where the language of the inscription is not Sanskrit, have been presented in this volume, every page of which bears witness to the author's skill and tact and conscientious industry. It will be a boon not only to the students for whom it is primarily intended, but also to those, who, though interested in the vast inscriptional literature in Sanskritic languages, cannot find time to look up the material in the specialised periodicals not easily available. The volume very properly begins with a few well-chosen Old Persian inscriptions and also contains quite a number from Ceylon, Central Asia, Burma, Malay Peninsula, Borneo, Java and Champā.— In a work of such magnitude it will be easy for everybody to pick out points of controversy of which perhaps the peculiar inscriptional term *pādānudlyāta* is the most obvious one. As in his previous publications, so in this volume too (p. 270, f.-n. 6), Dr. Sircar has suggested for this word the meaning "favoured", which has been recently endorsed also by the distinguished Sanskritist Prof. K. C. Chattopadhyaya. But this meaning cannot be accepted straightaway,—if only because it departs too far from the sense attaching to the basic root *dhyā*. Almost from the beginning of epigraphic research in India it was tacitly assumed that the compound verb *anu-dhyā-* must have an active meaning, and that *anudhyāta* is in some mysterious way equivalent to *anudhyātṛ*. But there is no basis for this double assumption. The compound verb *anu-dhyā-* is medial in meaning, not active, and it signifies "to *be* steeped in meditation"; cf. Mahābhārata XII. 127. 19: *tam anudhyātam ālakṣya* "seeing him steeped in meditation". The inscriptional term *pādānudhyāta* therefore literally signifies "steeped in the meditation of the feet." This meaning, so far as I can see, excellently fits most of the relevant passages in inscriptions. In rare cases the meaning "permitted" may have to be accepted on circumstantial evidence. But even then it will have to be explained how this peculiar sense grew out of the original one evident in the Mahābhārata passage quoted above.

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SOME HISTORICAL ASPECTS OF THE INSCRIPTIONS OF BENGAL [Pre-Muhammadan Epochs], by Benoychandra Sen, M.A., B.L., Ph.D. (Lond.), Lecturer in Ancient Indian History and Culture, Pali and Sanskrit, Calcutta University, Pp. lxxviii+613; Published by the University of Calcutta, 1942.

Whoever reads this book must constantly keep in mind—unless he is determined to do the author injustice—that Dr. Sen has been writing a *source-book*

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of history and therefore could not afford to concede to Clio, the first of the Muses, adequate opportunity to display her charms : in fact his book looks more like Vulcan's workshop than Clio's boudoir. Historical aspects of the inscriptions—not of Bengal only as the modest title of the book may suggest—have been discussed here with ruthless thoroughness and put to maximum utilisation. The author is cautious to the point of forbidding his judgement to be moved through dearth of absolutely dependable data to seek succour from constructive imagination. This attitude is responsible for some unimaginative criticism of constructive theories put forward by others,—for instance, Bhandarkar's ingenious theory about the Saṁvaṅgīya confederacy (p. 81). We have to remember that Pravaṅga and Upavaṅga are actually mentioned in literature, and the forms actually appearing in the inscription concerned are *savagīy(a)naṁ* and *saṁvagīyānaṁ* respectively. Under the circumstances, it seems to me, Bhandarkar was fully justified in suggesting that the word intended was *saṁvaṅgīyānām*, and his theory stands unshaken until and unless an alternative better theory is courageously put forward to replace it.—The bulk of the book is devoted to political chronometry, but its third and concluding Part dealing with administration under the Pālas and the Senas will prove interesting and stimulating also to the uninitiated. In this connection I wish to point out—what to my knowledge has not been noticed by anybody yet—that the time-honoured Indian official designation *mahāmātra* seems to have found its way into Greek vocabulary! Hesychius, the famous Greek lexicographer of the third century A.D., explains the Indian loan-word *Mamátrai* by *"hoi stratēgói par' Indois"* (quotation in Tarn, *The Greeks in Bactria and India*, p. 377 f.-n. 5), which means "commanders (or rulers) among Indians." The apparent disagreement in form between Gr. *mamátrai* and Skt. *mahāmātrāḥ* can be fully explained philologically. But we have to remember that Hesychius' Lexicon has been handed down to us in only one very corrupt and late manuscript.

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RUDRA-ŚIVA : Dr. S. Subrahmanya Aiyar Lectures, 1939-40, by Dr. N. Venkataramanayya, M.A., Ph.D., Reader in Indian History and Archaeology, University of Madras 1941 ; pp. vi+83.

The last two sentences of this curious but stimulating little book are : "All the characteristics which are supposed to be the hall-mark of Dravidism are thus definitely traceable to the Vedas. There are therefore no valid grounds for presuming a non-Aryan origin for the Puranic Śiva". But the characteristics of Dravidism not having been accurately formulated by the author or any of his predecessors in the field no one can decide if *all* of them can be traced to the

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Vedas, and the Aryan religion reconstructed in outline on the basis of the points of similarity among the primitive religions of Indo-European-speaking tribes showing no god towards whom the attitude of the worshippers can be proved to have been one of *do ut abeas* as towards the Rudra-gods of India and the *Theoì apopompaioi* of Greece, it is quite reasonable to assume as a working hypothesis that the gods of aversion were taken over by the Aryans from the peoples among whom their tribes settled down in historical times. Author apparently does not know Arbman's excellent book on Rudra, and nowhere has he betrayed an intimate knowledge of the Vedic texts with which he has been operating. Nevertheless, his theories are extremely daring, e. g., Rudra was an Aryan deity (p. 21) of solar origin (p. 27). And he has proved to his own satisfaction that the cult of the phallus is "the natural product of the evolution of primitive ideas inherent in the Aryan religion from the beginning" (p. 55), and that "the great Ishtar herself accompanied the first band of Aryans to the plains of Hindustan" (p. 64) who had adopted her cult from the Babylonians (p. 70). One cannot help thinking after reading this book that the author has tried to pay back the Aryan critics of Dravidian culture in their own coin. So far as Indian critics are concerned, this, however, was not necessary; for no Indian to-day, outside of lunatic asylum, would claim to be a pure Aryan.—By the way, Vedic *anās* does not necessarily mean "noseless" (p. 37); it may also mean "mouthless", i. e. "speechless" (*an-ās*); even to-day the Russian word for "German" literally means "dumb". The non-Aryans of India, whose speech was unintelligible to the Aryan invaders, might have been called "speechless" by them.

BATAKRISHNA GHOSH.

BULLETIN OF THE DECCAN COLLEGE RESEARCH INSTITUTE; Vol. III. No. 3.

The first article is by S. M. Katre who, following a suggestion thrown out by Prof. Renou, has opened herewith a series of studies in the rhythm of Old Indo-Aryan vocables. The present study is devoted solely to the nominal compounds of the Śatapatha Brāhmaṇa as collected by Madame Wilman-Grabowska. If Dr. Katre had examined the lists prepared by this distinguished Polish Sanskritist he would have doubtless been able to avoid the errors committed by her. But Dr. Katre has not done that. In consequence, he has unwittingly repeated some of the mistakes of Madame W-G. Thus the word *pūrvāhuti*, though figuring in Madame W-G's list, is not a compound at all, as I pointed out long ago (*IHQ.*, VIII, 1932, p. 301), but Dr. Katre has nevertheless included it in his (IV-13, 44). There is no reason to think, however, that the number of similar

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wrong entries in Madame W-G's lists is very large, and therefore the statistical results arrived at by Dr. Katre cannot be far wrong. A rigorous formulation of these statistical results would have supplied what the scholarly world would obviously expect from him.—Dr. Taraporewala in his short article on "Gāthā metre and chanting" has made the valuable suggestion that "the text of the Gāthās as we have it to day represents more the *gāna*-text adopted for chanting". This should explain—Dr. Taraporewala has not mentioned it—the protraction of final vowels in the Gāthās. I fully endorse his view that in the Veda "each pāda is a unit of sense as well as a unit of verse". In my Post-Graduate lectures on Ṛgvedic interpretation I have been for many years advocating precisely this view. It is however surprising to learn that "only a few months ago" Dr. Taraporewala discovered that mantras undergo variations when chanted to Sāmans. —The best contribution in this volume is undoubtedly Mehendale's "A Comparative Grammar of Aśokan Inscriptions" of which I read and admired almost every line: here we have an excellent comparative treatment of the phonology of Aśokan inscriptions. It is to be hoped that the other parts of the work will soon be out.—The "Comparative Etymological Index" by Katre to his "Formation of Koṅkanī" is in fact a compact and well-planned etymological dictionary which will certainly be useful.—Highly interesting is Sankalia's "Cultural Significance of the Personal Names in the Early Inscriptions of the Deccan". Author has skilfully arranged the names, giving of each the suffix, and the caste, race, religion etc. of the bearer of it. It appears that in early Deccan the father and the son had often the same personal name: this seems to be an intermediate stage between varying personal designation without any family-name and varying personal designation with a fixed family-name. In Bengal a fixed family-name with varying personal designations can be traced at least from the sixth century A.D. (see *Indian Linguistics*, Vol. VIII, Part I, p. 9). When and how far did the same custom develop in other parts of India? Author would do well to consult the works of Schulze, Solmsen, Hilka and Betty Heimann when dealing further with Indian proper-names.

BATAKRISHNA GHOSH.

MAGADHA ARCHITECTURE AND CULTURE by Sris Chandra Chatterjee, C.E. Sthapatya Visarad; published by the Calcutta University; D/C 8 vo. pp. xviii plus 114 with 1 Map and 46 illustrations in art paper. Price Rs. 5/-.

In his foreword Dr. Syama Prasad Mookerjee has rightly observed that the "purpose of the publication is to present before every cultured Indian, multi-coloured pictures of the glorious days of Magadha".

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Magadha maintained not only its sovereignty over India but also its individuality in art and culture for many centuries. It inspired architectural conceptions of other Indian Schools of Art. Nālandā evolved a very high standard of architectural style. The tomb of Sher Shah in Sasaram exhibits a delightfully powerful blending of Hindu and Muslim cultural traditions.

The Monograph under review gives a vivid description of the cultural and architectural legacies of Magadha. It is divided into 6 sections containing the History of Magadha, the Message of Magadha, Magadha Architecture under Moslem Rule and so forth. The last section contains amongst other things the appreciations and opinions of eminent persons favouring the founding of an All-India Institute of Indian Architecture. We whole-heartedly endorse this project. The vital beauty of expression of Indian Architecture lies in the spiritual depth of mental vision reflected in it—which true lovers of Indian Culture should do their best again to present to the world through its proper medium.

It is to be hoped that this Monograph which, considering the excellent get up and plates, is very moderately priced, will receive the welcome it deserves from all architects, engineers and lovers of Indian Art.

SATIS CHANDRA SEAL.

JAINA SYSTEM OF EDUCATION by Dr. D. C. Dasgupta, M.A., Ed.D. (Calif.), published by Bhāratī Mahāvidyālaya, 170, Maniktala Street, Calcutta. Pages xiv+134, Price. Bound Rs. 3|8|- (or Sh. 5|-), Unbound Rs. 3|- (or Sh. 4|6). 1943.

Here is a helpful book, written in a lucid style by an author thoroughly conversant with the technical knowledge of the subject. It is a pioneer work in the sense that it surveys the whole field of the Jaina System of Education from various view-points—historical, psychological, educational and other. The theme is approached from Jaina stand-point, although the Buddhist and Brahmanical sources relevant to the theme have been laid under contribution in these ten lectures. The treatment is both penetrating and judicious. The author has tried to establish that some of the features of the Western system of educational methods—such as co-education, psycho-analysis, intelligence test, vocational training etc.—were anticipated by the theorists of education in Jaina India. As might be expected of a pioneer work, it is more suggestive than exhaustive. We hope that the author will give us more of the fruits of his specialised research in other similar publications. We congratulate the author, the patron and the publisher on the production of this thoughtful and thought-stimulating book.

P. P. CHATTERJI.

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PAÑCHĀLAS AND THEIR CAPITAL, AHICCHATRA by Dr. Bimala Churn Law, Memoirs of the A. S. I. No. 67. Price Rs. 2|4|- or 3s. 9d.

Dr. B. C. Law has once more placed students of Indian archaeology under an obligation by this succinct and valuable account of the Pañchālas and their capital. All the available evidences, literary, epigraphical and numismatic, have been presented in this memoir with his critical comments that do full justice to the different views put forward from time to time by different scholars, and Dr. Law's judgement on the matters passed in review is marked by the moderation and soundness that we expect in any work done by him; we would commend particularly his restrained discussion of the numismatic evidence of the 'mitra' coins. There is a very good map of the Pañchāla country.

K. A. Nilakanta Sastri.

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IMPORTANT CONTRIBUTIONS TO ORIENTAL JOURNALS

Annals of Oriental Research (University of Madras), Vol. V, Part 2, 1941.

Place-name suffixes in Tamil *by* R. P. Sethu Pillai.

A Note on the word 'Tēvu' *by* V. Venkata Rajulu Reddiar.—"The verb is written as *tevu* in the available editions of *Tolkappiyam*. But the correct form seems to be *'tēvu'*." In Tamil.

Dravidian Phonetics *by* K. Ramakrishnaiya.—Author has discussed various phenomena such as the softening and palatalisation of consonants, metathesis, anaptyxis etc. in Telugu.

Grantha Samskaramu (in Telugu) *by* Sripada Lakshmipathi Sastri.—Method of text-editing with illustration from the *Kumārasambhava*.

Turning Points of Kannaḍa Literature *by* M. Mariappa Bhat.

Prābhākaras' Criticism of Dhvani *by* P. Krishnan Nair.—A refutation of the criticisms of Prābhākaras on the theory of Dhvani. In Malayalam.

Sarvānukramaṇī-padya-vivṛtti, A New Commentary on the Ṛgvedānukramaṇī of Kātyāyana *by* C. Kunhan Raja.—Short extracts out of this hitherto unknown metrical commentary.

Niruktavārttika (a rare work till now undiscovered) *by* C. Kunhan Raja.—Author has tried to show that this lost work should have been known to Durga.

Studies on Kālidāsa *by* C. Kunhan Raja.—In the first study the author makes the very bold suggestion that the original Raghuvaṁśa "must have stopped with the first eight Cantos and the entire Rāmāyaṇa portion must have been the addition of a later hand". In the second he has tried "to find out how far the mind of the poet was saturated with the story of the Kumārasambhava when he was writing the Raghuvaṁśa."

Notes on some Ancient South Indian Political Geographical Names *by* V. Raghavan.—Author has discussed the names *Preharā, Aśmaka, Pallava, Dramila* and *Śivi*.

Tattvaśuddhi *edited* by S. S. Suryanarayana Sastri and S. P. Radhakrishnan. —Final instalment.

Ibid., Vol. VI, Part 1, 1942.

Change of Consonants *by* V. Venkata Rajulu Reddiar.—Author has discussed Sandhi-changes in Tamil. In Tamil.

Dravidian Phonetics *by* K. Ramakrishnayya.—Author has discussed the development of *l* in Dravidian languages.

Āṇḍayya by M. Marippa Bhat.—Author has critically examined the Kannaḍa poet Āṇḍayya's work "Kabbigara Kāva." In Kannada.

Death of Odēnan *by* Chelnat Achyuta Menon.—Malayalam text of the ballad of same name.

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Dhvanyāloka (in Malayalam) *by* P. Krishnan Nayar.—Author has tried to prove that *both* the Kārikā and the Vṛtti of Dhv. are by Ānandavardhana.

Notes on Kālidāsa *by* C. Kunhan Raja.—In the Bhartavākya of the Mālavikāgnimitra the author finds "a very weighty evidence for the date of Kālidāsa as contemporaneous with the King Agnimitra." In the second note an attempt has been made to find allusions to Agnimitra in K.'s works. In the third note the author says in justification of his theory about Raghuvaṁśa that the poet's intention was to describe only the *origin* of Raghu's dynasty.

Some Appaya Dīkṣitas *by* V. Raghavan.

Minor Works Wrongly Ascribed to Ādi Śaṅkara *by* V. Raghavan.—Author discusses *Sarvavedāntasiddhāntasārasaṁgraha* and *Prabodhasudhākara.*

Tuḥfat-al-Mujāhidīn, an Historical Work in the Arabic Language, translated into English, *by* S. Muhammad Husayn Nainar.—Author has rendered a great service by retrieving from oblivion this important work dealing with the history and geography of south-western India in the medieval age.

Anthropos, Vol. XXXV-VI, 1940-41, *Parts* 1-3.

Bhagwān, the supreme deity of the Bhils *by* W. Koppers.—Ethnological study.

Bhāratīya Vidyā Vol. III, Part II, May 1942.

Bhāratīya Vidyā *by* Sarvapalli Radhakrishanan.—A popular address.

The Golden Age of the Imperial Guptas *by* K. M. Munshi.

Date of Meghavijayagaṇi's Commentary on the Hastasañjīvana—between A.D. 1680 and 1700 *by* P. K. Gode.

Sūktabhājaḥ and Havirbhājaḥ *by* H. G. Narahari.—Examination of this principle of classifying the gods.

Indus Civilization *by* A. D. Pusalker.—Contd. from Bhāratīya Vidyā Vol. III, Part I.

Pre-Mahābhārata Solar Dynasty *by* D. R. Mankad.—In this paper the author has discussed and reconstructed "the pre-Mahābhārata Solar Dynasty as it stood in the days of the Mahābhārata war."

The City of 'Alakā' in Meghadūta' *by* S. N. Vyas.—Author concludes "that the modern Suvarṇa-giri can justly be identified with the old Alakā."

The Book in India *by* K. M. Munshi.—A popular address on writing, printing, etc.

Maheśvarasūri's Jñānapañcamīkathā *by* A. S. Gopani.—A preliminary notice about the text which the writer is editing.

Two Linguistic Notes *by* Harivallabh Bhayani.—Author has discussed some Gujarātī reduplicatives and Gujarātī representatives of the Sanskrit secondary formations in *-rūpa.*

Bharadvāja's Hymns to Agni *by* Manilal Patel.—Critical translation of RV. VI. 13-16.

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Brahmavidyā—the Adyar Library Bulletin, Vol. VI., Part 1.

Four Documents relating to the Kāḷahasti Temple *by* K. A. Nilakanta Sastri and M. Venkataramayya.

The Works of Vādi Vāgīśvara *by* V. Raghavan.

Serial Publications :—

Jīvānandanam of Ānandarāya Makhin *edited by* G. Srinivasa Murti and M. Duraiswami Aiyangar.

Saṅgītaratnākaraḥ with the commentaries of Catura Kallinātha and Siṁhabhūpāla *edited by* S. Subrahmanya Sastri.

Śrīpāñcarātrarakṣā of Śrī Vedāntadeśika *edited by* M. Duraiswami Aiyangar and T. Venugopalacharya.

The Nyāyakusumāñjali of Udayanācārya *translated by* Swami Ravi Tirtha.

The Āpastambasmṛti *edited by* A. N. Krishna Aiyangar.

Ālambanaparīkṣā and Vṛtti by Diṅnāga, with the Commentary of Dharmapāla *edited by* N. Aiyaswami Sastri.

The Acyutarāyābhyudaya of Rājanātha Diṇḍima *edited by* A. N. Krishna Aiyangar.

Bulletin of the School of Oriental and African Studies, University of London, Vol. X, Part 4.

Hvatanica IV *by* H. W. Bailey.—Selected Khotanese Buddhist texts with English translation.

Indo-Iranica *by* J. Duchesne-Guillemin.—Author has discussed Old Persian "a-sa-a da-a-ru-u-va", Avestan *xšnau-*, Skt. *várpas* : *rūpá*, Avestan *raēθ-* and *nakaθwa-*.

Recherches sur l'étymologie des deux dialectes tokhariens *by* A. J. van Windekens.—The etymology of only a few Tokharian words has been discussed.

Mani's Last Journey *by* W. Henning.—Based on fragments of Manichaean texts (published here for the first time) in Middle Persian.

Tibetan *dan, cin, kyin,* and *ham by* Walter Simon.—An overlooked Type of Inference *by* Arnold Kunst.—Author has expended much ingenuity on propositions with the copula *kiṁpunar*.

The Vulgar Pronunciation of Tamil *by* G. Matthews.

Epigraphia Indica, Vol. XXVI, Parts III—V.

Tumain Inscription of Kumāragupta and Ghaṭotkachagupta (G. E. 116) *by* M. B. Garde.—This inscription clearly shows that Ghaṭotkacagupta was a member of the Imperial Gupta family, though it is not clear whether he was the son or a younger brother of Kumāragupta.

Two Yūpa Inscriptions from Barnala : Kṛta years 284 and 335 *by* A. S. Altekar.—The first commemorates the performance of the seven Soma-sacrifiices if editor's emendation *saptakam* is accepted; the second commemorates the performance of Garga-trirātra (Śāṅ. Śr. XVI. 21).

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Gurzala Brahmi Inscription *by* K. A. Nilakanta Sastri.—This Prākrit inscription of the third century A.D. records the gift of a field to Bhagavān, the Lord of Halaṁpūra, by Noduka-siri in the fourth regnal year of Mahārāja Siri-Rulupurisadāta.

Parasuramesvara Temple Inscriptions *by* A. Ghosh.—Of these five short inscriptions of the Paraśurāmeśvara Temple at Bhuvaneswar the principal one, palaeographically of the eighth century, records the daily offering of an *āḍhaka* of rice to the lord Pārāśeśvara.

An Inscription of Jaitugi, Saka 1188, *by* H. D. Sankalia and S. C. Upadhyaya.—The main object is to record gift of land to a Brāhmaṇa Vaïdeva, a Jyotiṣī, in the reign of Jaitugi.

Bihar Kotra Inscription of Naravarman's Time [Mālava year 474] *by* S. N. Chakravarti.—It records the digging of a reservoir in the name of the Bhikṣusaṁgha of the four quarters. King Naravarman of this Inscription was a predecessor of the great Yaśodharman, the conqueror of Mihirakula.

Dhavalapeta Plates of Maharaja Umavarman *by* R. K. Ghoshal.—This Inscription of the first half of the fifth century A.D. records the gift of a village to the Brāhmaṇa Khallasvāmin of the Vatsa Gotra and Chandoga Śākhā.

Spuriousness of the Nalanda Plate of Samudragupta *by* Dines Chandra Sircar.

Basim Plates of Vakataka Vindhyasakti II *by* V. V. Mirashi and D. B. Mahajan.—From this, the earliest copper-plate grant of the Vākāṭakas, the editors, *inter alia,* have drawn the conclusion that the Vākāṭakas had their original home in the South and not in Central India.

Kothuraka Grant of Pravarasena II *by* V. V. Mirashi.—Of fundamental importance for Vākāṭaka history.

A Note on the Dates of three Rashtrakuta Kings *by* A. S. Ramanatha Ayyar.—The three Kings are Indra III, Govinda IV and Kṛṣṇa III.

Indian Museum Plates of Ganga Indravarman *by* C. C. Das Gupta.

A Buddhist Tract (*dhāraṇī*) in a Stone Inscription in the Cuttack Museum *by* A. Ghosh.—Perhaps it was thrown into a Caitya in course of construction for the attainment of religious merit.

Takkali Plates of Anantavarman : Ganga Year 358 *by* R. K. Ghoshal.

Dongargaon Inscription of the Time of Jagaddeva : Saka 1034 *by* V. V. Mirashi.—Important for Paramāra history.

Six Saindhava Copper-plate Grants from Ghumli *by* A. S. Altekar.—Of fundamental importance for the history of Kathiawad.

A Note on the Date of the Somavaṁsi Kings of Southern Kosala *by* V. V. Mirashi.—Against A. Ghosh author maintains that the Somavaṁśī Kings flourished in Chhatīsgarh in the sixth and seventh centuries A.D.

Nalanda Seal of Vishnugupta *by* Krishna Deva.—Comparing the Gupta genealogy of the Mañjuśrīmūlakalpa with that of the seals author has established, inter alia, the identity of Pūrugupta with Skandagupta.

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The Indian Geographical Journal, Vol. XVI, No. 4.

Geographic Basis of the Legendary Origin of Kerala *by* George Kuriyan.

Geography and Culture *by* Maneck B. Pithawalla.

The Indian Historical Quarterly, Vol. XVII, No. 4 and Vol. XVIII, No. 1.

The Dramas ascribed to Bhāsa *by* S. K. De.—Author has shown "that all these plays are more or less faulty, and are not as they are often represented to be." Nor is it certain that they were written by the real Bhāsa; but they are certainly forceful and unlaboured.

Origins of the Rajput War (1679-81) *by* Yashpal.

Bṛhaspati Rāyamukuṭa and his Patron (as known from the former's works) *by* R. C. Hazra.

Date and Works of Rāyamukuṭa *by* Dines Chandra Bhattacharyya.

The Aṅgacūliyā, a Sacred Text of the Jainas *by* Amulyachandra Sen.

The Position of Wives other than the First in the Vedic Ritual *by* J. B. Chaudhuri.—Contd. from previous issue.

Two Religious Poems (in Marathi and Sanskrit) on the Hindu Nose-ornaments *by* P. K. Gode.

A Prākrit Grammar attributed to Samantabhadra *by* A. N. Upadhye.—This grammar (unpublished) "is a mechanical and imperfect copy of Hemacandra's grammar."

Early Tamil Religious Literature *by* V. R. Ramachandra Dikshitar.—Excellent survey.

The Vaṁśas and Gotra-pravara Lists of Vedic Literature *by* U. N. Ghoshal.—A study in the beginnings of Indian Historiography.

Amāvāsyā in Mythical and Philosophical Thought *by* Maryla Falk.—It is more mystical than either mythical or philosophical.

Early Indian Jewellery *by* Kalyan Kumar Ganguli.—Deals with finds at Mohenjo-daro and Harappa. To be continued.

A new Buddhist Sect in Kanheri *by* Moreshvar G. Dikshit.—Correcting Bühler's reading author reads *aparīselesu* (Aparaśailas!) in Kanheri cave inscription No. 76.

'Tatpādānudhyāta' *by* K. Chattopadhyaya.—This familiar expression of the Inscriptions should mean "favoured by the feet of."

The Historicity of Ibn Batuta re. Firuz Shah *by* Abdul Majed Khan.—Author concludes that Firuz Shah was an adventurer and not a member of the *Balbani* dynasty.

Some Old Coins Re-discussed *by* V. V. Mirashi.—The rediscussed coins are those of Vīrasiṁha and Vatsadāman.

The Jaina Antiquary, Vol. VII, No. II.

References to the Caitragaccha in Inscriptions and Literature *by* P. K. Gode.

Jaina Traditions in Rājāvaḷī Kathe *by* S. Srikaṇṭha Śastri.

The Jaina Chronology *by* Kamta Prasad Jain.

Magic and Miracle in Jaina Literature *by* Kalipada Mitra.

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Journal of the Benares Hindu University, Vol. 6, Nos. 2-3.

Daughter's Son in the Bengal School of Hindu Law *by* Brajendrasundar Banerjee.

Social, Economic and Cultural Life in the Republics of Ancient India *by* Rama Dhari Singh.

Conception and Ideals of Education in Ancient India *by* A. S. Altekar.—A popular essay by a distinguished scholar.

On the River Sindhu in 'Mālavikāgnimitra' *by* B. S. Upadhyaya.

Atharvaveda Conception of the Motherland *by* Raj Bali Pandey.

An Approach to the Rāmāyaṇa *by* C. Narayana Menan.—Fantastic.

Journal of the Bihar and Orissa Research Society, Vol. XXVIII, Part I.

Indian Painting *by* P. C. Manuk.—Report of a popular address (without illustrations).

Sources for a History of Nepal (880 A.D. to 1680 A.D.) *by* D. R. Regmi.

The Indra-Vṛtra War and the 'Serpent People' *by* R. Ojha.

Journal of the Gujarat Research Society, Vol. IV, No. 1.

Jaina Priests at the Court of Akbar *by* M. D. Desai.

Three Gujarati Legal Documents of Moghul Period *by* P. C. Divanji.

Journal of Indian History, Vol. XX, Part 3.

Chandragupta and Bhadrabāhu *by* Dhirendra Nath Mookerjee.

The Dates of the Kadphises Kings and their Relations with the Saka Ksatraps of Western India *by* Baji Nath Puri.

Establishment of the Bahmani Kingdom *by* H. K. Sherwani.

The Capture of Gingi by Bijapur *by* Bernard Anderson.

Journal of the Numismatic Society of India, Vol. IV, Part 1.

New Kings and Interesting Coin-Types from Kauśāmbī *by* A. S. Altekar.

Notes on Some Pañchāla Coins *by* A. S. Altekar.

A Coin of Vaṅgapāla, a King of Kauśāmbī *by* A. S. Altekar.

A Coin of Madavika, a New King or People *by* A. S. Altekar.

Two Coins of Ajadatta, a New King in Central India *by* A. S. Altekar.

Some Interesting Sātavāhana Coins *by* A. S. Altekar.

Some Interesting Uninscribed Coins *by* A. S. Altekar.

Some Interesting Medieval Coins by A. S. Altekar.

Hephthalite Coins with Pahlavi Legends *by* J. M. Unwala.

The Old Names of Suneta and Sudavapa *by* V. S. Agrawala.

Journal of the Royal Asiatic Society of Bengal (Science) Vol. VII, No. 1.

Tibetan and Bhotia Blood Group Distributions *by* Eileen W. E. Macfarlane.

Blood Groups among Balahis etc. *by* Eileen W. E. Macfarlane.

Racial Affiliation of the Gonds of the Central Provinces *by* D. N. Majumdar.

The Journal of the Sind Historical Society, Vol. V, No. 4.

Some Observations on Baloch Peotry of the Sind Border *by* H. T. Lambrick.

Prof. Hodivala's Comments on Tarikh-i-Tahiri.

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Was Akbar Literate? *by* N. M. Billimoria.—"Akbar was not only well-versed in Persian, the then Court-language, but also could follow Arabic, Sanskrit and Hindi."

Journal of Sri Venkateswara Oriental Institute, Vol. II, Part 2.

Śābdāparokṣavādaḥ (in Sanskrit) *by* T. A. Venkateswara Dikshitar.

Sāmānādhikaraṇyavādaḥ (in Sanskrit) *by* T. A. Venkateswara Dikshitar.

Advaitasiddhāntaḥ bhagavadbhaktiś ca (in Sanskrit) *by* V. R. Narasimhachariar.

Viśiṣṭādvaitasaṁgrahaḥ (in Sanskrit) *by* T. A. P. Krishnamacharya.

Vaiśeṣikavyākhyāvimarśaḥ (in Sanskrit) *by* T. Viraraghavacharya.

Ke te sapta maharṣayaḥ catvāro mānavaś ca (in Skt.) *by* K. V. Nilameghacharya.

Jaiminyabhimataṁ devatāsvarūpam (in Skt.) *by* K. Sathakopacharya.

Śrīgaṇapatirahasyam (in Skt.) *by* A. Ramanatha Sastri.

Māheśvarasūtravimarśaḥ (in Skt.) *by* C. Raghavacharya.

Saṁskṛtabhāṣoddhāraḥ (in Skt.) *by* Gunderao Harkare.

Atharvaveda *by* Swami Vaidyanathendra Bharati.

The Viśiṣṭādvaitic Theory of Perception and Perceptive Error *by* K. C. Varadachari.

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Obituary Notice

MRS. C. A. F. RHYS DAVIDS

The Buddhist world has become poorer to-day by the death of Mrs. Rhys Davids, in June 1942, at the age of 84. The Pali study has received a great set-back in her death. She along with her renowned husband, T. W. Rhys Davids, founded the Pali Text Society, located in her house, at Surrey, with the main intention of editing and printing unpublished Pali texts and commentaries. Almost all the texts of the Tripiṭaka have been duly edited and published by her with the collaboration of many well-known scholars of the East and the West. Many important Pali texts and commentaries have been translated by her into English for the benefit of the scholars and laymen alike. She was fortunate enough to secure the services of many scholars to complete the Herculean task which she had undertaken, and I am glad to say that she was greatly successful in her mission. The Pali-English Dictionary published by her society is undoubtedly a monumental work. It is often quoted and is very useful.

Mrs. Rhys Davids wrote many original works on Buddhist philosophy, ethics and psychology, folklore and mysticism. Her treatises are very learned and thought-provoking, although we may not accept some of her views.

It is most unfortunate that she did not live to see her last work completed. That is the *Piṭaka Concordance*. I helped her much in completing my section of the unpublished work, and delivered it to her in 1940. I do not know what will be the fate of this much coveted work.

It goes without saying that Mrs. Rhys Davids was one of the greatest Pali scholars. I can say with confidence that she has left to posterity many important and useful contributions towards a better understanding of Hīnayāna Buddhist thought. May her soul rest in peace !

B. C. Law.

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